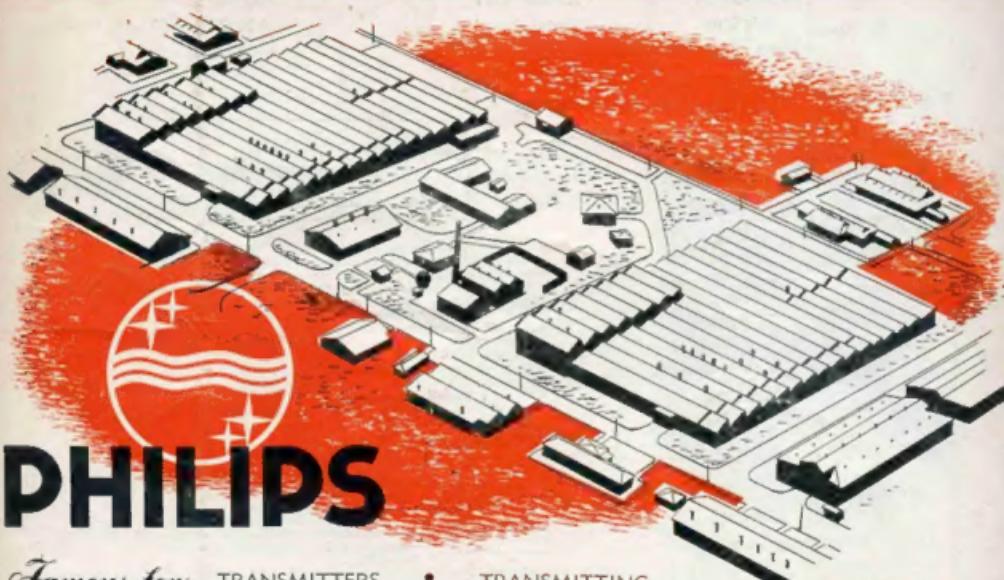


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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

JUNE
1948



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AMATEUR RADIO

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EDITORIAL



Elsewhere in this issue appears a complete schedule of frequencies now available for use by the Australian Amateur. The latest additions to this list are as follows:—

288-296 M.c. and

576-585 M.c.

The use of these frequencies involve techniques and apparatus which will occupy the attention of all serious workers for a long time to come.

The Radio Society of Great Britain has produced an interesting handbook on micro-wave technique, an advance copy of which has come to hand, and which will doubtless serve as a suitable introduction to most of us. In this connection, the Federal Executive have written the R.S.G.B. Headquarters requesting that a copy of the book be forwarded to each Division for perusal. Arrangements are also being made to enable mem-

bers to obtain their own personal copies thereafter.

Operation of these new frequencies will rest very much on new tubes that have lately been developed in Great Britain, and which have amazing performance, yielding as they do their full output on these frequencies. Disposals' equipment, at present available, does not appear to cover these frequencies, but here again the ingenuity of the serious worker will overcome these obstacles.

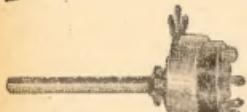
The bands will doubtless be opened up on the basis of "Optical Range," but who knows where they will finish! Steady application to the problems involved will enlarge our knowledge of ultra-high frequency work, and fit us for service in many important technical applications should the national need ever require it.

—P.E.

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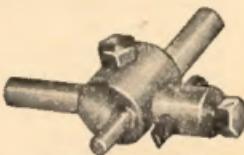


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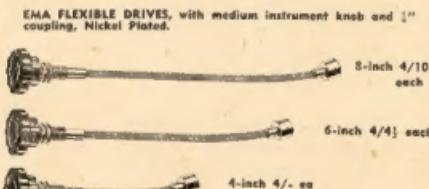
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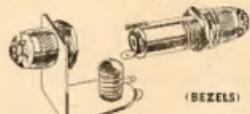


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Double Conversion Receiver

BY C. C. WARING*, VK3YW

Saturday morning, 2nd September, 1939, all Hams received a long telegram and we were off the air. After pottering about for a week or two, the writer decided the best way to fill in the spare time was to build the receiver he had always dreamed about.

DESIGN Before gathering up all the bits and pieces a few thoughts on paper seemed to be in order to solidify all the ideas that had been disturbing the night's sleep.

- 1—General coverage and Ham band tuning from 3.5 to 28 Mc.
- 2—Amplified band spread on 3.5, 7, 14 and 28 Mc. bands.
- 3—R.F. stage ahead of converter to give good signal-to-noise ratio.
- 4—I.F. stages sufficient to give good selectivity and ample image ratio.
- 5—Amplified gain to give proper a.v.c. action.
- 6—Crystal filter with variable selectivity and rejection controls on the panel.
- 7—A satisfactory noise silencer or limiter with threshold adjustment on panel.
- 8—Signal meter (optional).
- 9—A.V.C. with cut-out switch on the panel for c.w.
- 10—B.F.O. with cut-out switch on panel.
- 11—Separate r.f. and a.f. gain controls.
- 12—Plug-in coils for simplicity and low losses.
- 13—Band-set condensers brought out to front of panel for easy adjustment.
- 14—Standby switch in B+ lead so that receiver can be switched off during transmitting periods.
- 15—Headphone jack and externally-mounted speaker.
- 16—Double antenna connections.
- 17—Complete shielding to minimise stray r.f. pick up.
- 18—Strong chassis construction for stability.
- 19—External power supply to minimise heat production and frequency drift in receiver.

Quite an imposing list when one writes it down, but not so hard to satisfy when you get down to tin tasks. Perhaps before the reader goes any further, and feels that a receiver containing 13 tubes and strings of tuned circuits would be too complicated and touchy to get going and to keep lined up, let him remember that most of the tuned circuits are in the i.f.s. and once peaked need not be touched for many a day, there is nothing complicated about the receiver. All circuits are straight-forward, even the noise silencer chosen is amendable to simple explanation without any hair-pulling maths; anyway let's look at the circuit and see how she goes.

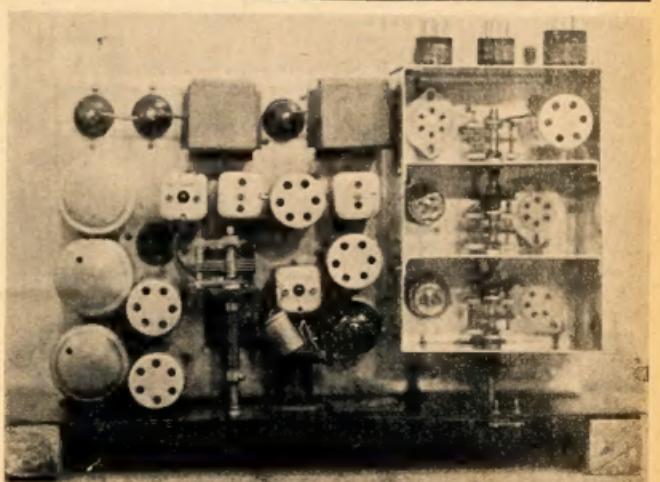
I.F. CHANNELS A glance at the circuit diagram will show that basically the receiver is a superheterodyne using two intermediate frequencies, of course there is nothing new in this; the idea, I believe, was included in Armstrong's original patents, and is used universally with the various h.f. converters on the market at present. The use of an i.f. of 465 or 455 Kc. is a compromise between the selectivity and high gain to be obtained at low frequencies and image ratio. It is well known that low i.f.s. do not give adequate image ratios at high frequencies and that higher i.f.s. are less selective but give better image ratios, so it seems the obvious thing to use both.

A frequency of 1600 Kc. was selected as the first i.f., this will give adequate image ratio on 28 Mc. Any of the popular i.f.'s. on the market round about this frequency may be used; 1.9 Mc. i.f. should be excellent. The second i.f. presents itself as a problem which can have a number of answers. For c.w. work a crystal filter of 465 Kc. or thereabouts, works out very nicely, and as the diagram shows I use two stages of i.f. following the crystal, not to get increased gain (one stage will give you plenty), but to give increased selectivity. The increase in selectivity given by the extra stage, especially when it is cut back as shown, is well worth while.

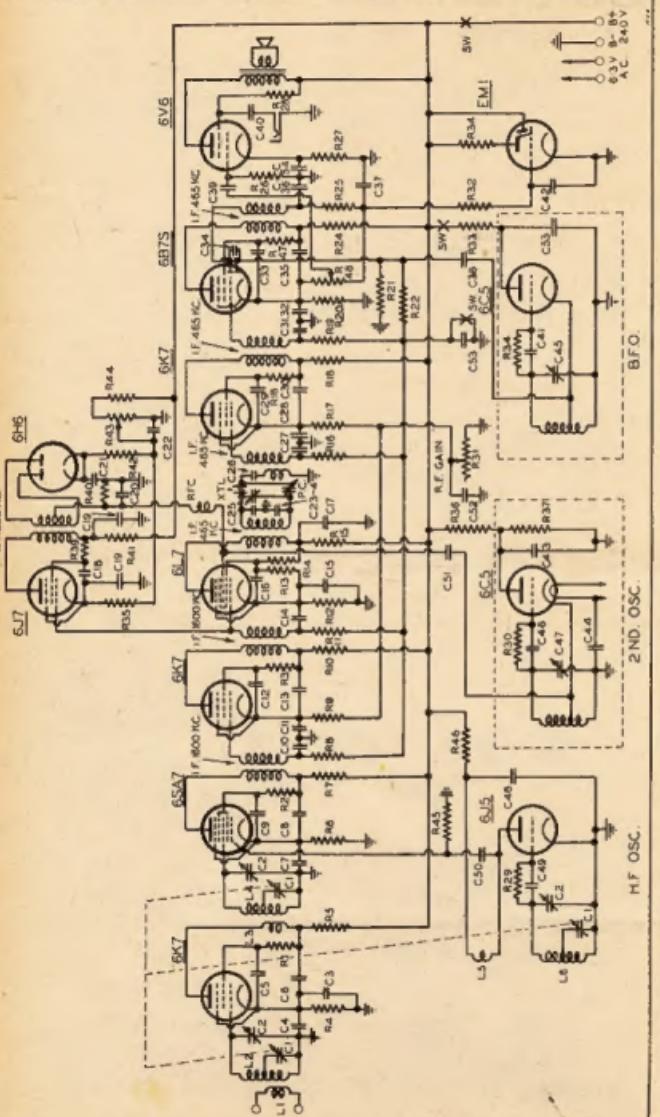
If you have no crystal, don't intend to get one, or if you are only interested in phone, an i.f. of 175 Kc. will give you

much sharper tuning than the plain 465 Kc. stages. At the lower i.f. you will have so much gain to pour down the sink that instead of using single i.f. transformers between stages you can use two transformers (back to back) and coupled through a small condenser of 3-4 pF. to give a bandpass effect. This will undoubtedly mean shaving cycles off the frequency response, but at the same time will cut out many of those ever-present heterodynes.

At this stage, no doubt, somebody has wondered about the possibility of harmonics or beat frequency response, from the three oscillators employed, getting into the front end; this admittedly could be a problem. It was tackled in this receiver firstly by thorough shielding of all oscillator circuits. The shielding shown round the front end is carried down under the chassis and finished off with a cover-plate; the second converter oscillator and the b.f.o. valves, coils and sockets are both well shielded above and below the chassis with all by-pass condensers inside the shields. Secondly, by the use of low voltages on the b.f.o. and second oscillator; and thirdly, by choosing a frequency for the second oscillator (which has the chance of being the biggest nuisance) which keeps it clear of the lower frequency Amateur bands. In this receiver this oscillator runs on 2065 Kc. and does not meet up with an Amateur band until it reaches the 28 Mc. band, but harmonics seem to be conspicuous by their absence at the lower frequencies.



Top view showing lay out of R.F., I.F. and location of band spread condensers.



NOISE SILENCER The noise silencer will probably be called complicated—frankly it is not—and goes back to Lamb's noise silencer of 1932. "A noise silencer is a device which, when properly adjusted, will disable the receiver during high amplitude noises of short duration and prevent their passing on to other parts of the circuit where overloading can occur, and produce secondary effects which completely spoil reception."

In the noise silencer shown, the silencing action takes place in the second converter (a 6L7). In addition to the silencer-converter tube, use is made of a 6J7 as a noise amplifier (connected in parallel to the 6L7) coupled by a noise transformer to a 6H6 noise rectifier. The coupling transformer will need to be tailor-made and consists of a tuned plate coil (1600 Kc.), and an unturned centre-tapped secondary. It was made by stripping the original 1600 Kc. secondary off and replacing by winding 60 turns of 28 gauge silk covered wire as close as possible to each side of the primary.

Operation is as follows. The noise is amplified by the 6J7 and rectified by the 6H6. The pulsating d.c. voltage developed by rectification across the diode resistor is applied through r.f. to the No. 3 (injection) grid of the 6L7; the resulting increase of bias will stop conversion, not for long of course as the noise pulses are of short duration and

R1, R2, R3, R8, R11, R14, R16, R18, R19, R39, R40, R47—0.1 Meg., 1 watt.

H1, R9, R35—500 Ohms, 1 watt.

R5, R7, R10, R15, R18, R20, R24, R25—3,000 Ohms, 1 watt.

R6—250 Ohms, 1 watt.

R12—2,000 Ohms, 1 watt.

R13, R30, R33, R34, R39—50,000 Ohms, $\frac{1}{2}$ watt.

R17—1,000 Ohms, 1 watt.

R21, R34—2 Meg., 1 watt.

R22—1 Meg., $\frac{1}{2}$ watt.

R26—0.5 Meg., $\frac{1}{2}$ watt.

R27—250 Ohms, W.W.

R28—0.2 Meg.

R31, R43—3,000 Ohms, W.W. Pot.

R32—3 Meg., $\frac{1}{2}$ watt.

R36, R44—30,000 Ohms, 1 watt.

R37—10,000 Ohms, 1 watt.

R41—4,000 Ohms, 1 watt.

R42—0.25 Meg., $\frac{1}{2}$ watt.

R45—20,000 Ohms, $\frac{1}{2}$ watt.

R46—25,000 Ohms, 1 watt.

R48—0.5 Meg. Pot.

C1—Three 30 pF. band spread ganged.

C2—100 pF. band set.

C3, C4, C6, C7, C8, C9, C10, C11, C12,

C13, C14, C16, C17, C18, C19, C39,

C40—0.01 μ F.

C5—0.005 μ F.

C15, C21, C27, C29, C30, C31, C33, C35,

C42, C43, C44, C48—0.05 μ F.

C20, C25, C26, C50, C51—50 pF.

C22, C52—0.5 μ F.

C23, C24, C34, C36, C37, C41, C46, C49—100 pF.

C28—0.1 μ F.

C32, C34—25 μ F.

C38—1 pF.

C39—0.02 μ F.

C45, C47—465 Kc. Padders.

P.C.—Three Plate Midgel.

punch a short-time hole in the signal (so short that the ear is not aware of it). Capacity transfer of strong signals are eliminated in this arrangement as the plate and grid circuits of the 6L7 are related only by conversion.

To aid in the silencing action the oscillator injection voltage is made small by running the oscillator at low voltage and the 6L7 is operated at high bias and low screen voltage to reduce the conversion gain. The start of the silencing action is controlled by the resistor R43 which acts as a threshold control by varying the cathode bias on the 6J7 and 6H6.

It will be noticed that the silencer is ahead of the crystal filter; in this position apart from the fact that the silencer operates better by being in a comparatively unselective part of the receiver, it cuts out those annoying pings a crystal filter delights to give out when hit by a sharp noise peak.

CRYSTAL FILTER The crystal filter is easy to make and does not cause a drop in the signal to any extent when switched in, although it does give the impression of loss of sensitivity due to the marked cutting down of background noise. Noise in receivers is directly related to band-width and it is only logical that when the band-width is cut (and cut severely when the crystal goes in) that the background noise will drop.

As in the noise silencer a little simple tailoring is necessary for both input and output transformers of the crystal filter. The input transformer consists of an ordinary 465 Kc. i.f. transformer with the 100 pF. fixed condenser across the secondary removed and replaced by two condensers of similar capacity connected in series and shunted across the coil. The centre connection between these condensers is earthed to give a centre tap effect for the input circuit, the remaining 50 pF. capacity is made up by condenser C25 across the input circuit. This resonates the whole circuit to the i.f. frequency when the crystal is shorted out, and acts as a selectivity control when the filter is in operation; selectivity increasing as the condenser is tuned away from resonance (for the theory of this see past issues of "Amateur Radio" or the R.S.G.B. "Radio Amateur's Handbook").

The output transformer consists of an air-core i.f. from the junk box. One coil was stripped off, and 35 turns of 30 gauge enamel wire (which happened to be handy) were scramble-wound as close to the remaining coil as possible. This gives a step up effect from the filter and a better impedance match. Phasing condenser P.C. consists of a 3 plate midget with the crystal shorting switch attached to the shaft. This switch consists of a piece of copper wire soldered to the shaft and a small piece of copper or brass strip bolted to the isolantite back plate to make a wiping contact. Both the phasing condenser and the selectivity control condenser are brought out to the front panel through insulated couplings, necessary in this case as both sides of the condensers are hot.

AUDIO SECTION The audio end may cause a slight amount of eye-brow lifting due to its apparent lack of gain, but the writer does not think it necessary to have four, five or more watts of audio worrying the family and neighbours. The 6VG6 as shown operates with a screen voltage of 100 and has an output of 1.5 watts with a load of 14,000 ohms. 1.5 watts gives ample volume and enables me to listen to VK3WI while I chop the wood outside, and perhaps better still it only takes an input voltage of 5 volts to drive it. As there is plenty of gain ahead of the diode it has no difficulty in delivering the output necessary.

Another convenient aspect of the 200,000 ohm resistor in the 6VG6 screen lead is that it makes a handy audio choke to plug the phones in between screen and earth (through a blocking condenser of course). Taking the phone output from the screen gives a nice balance between headphones output and speaker level; by this I mean that when the speaker is plugged in, it is not necessary to turn the audio gain up.

A.V.C. This is applied to the three i.f. amplifier tubes and the second converter, which gives ample control and a fairly steady output over a wide range of signals. It is not applied to the r.f. amplifier ahead of the 6SA7 as this tube is run flat out at all times to get as good a signal-to-noise ratio as possible.

The r.f. stage was originally coupled into the a.v.c. line and also to the r.f. gain control because it was thought that overloading would occur with strong signals. Experience disproved this idea and it was allowed to operate at maximum ratings at all times with an improvement in signal-to-noise ratio.

COIL TABLE 3.5 Mc. Band

Coil	Turns	Wire	Length	Band Set
L1	7	26*	close-wound	
L2	27	"	"	
L3	7	"	"	
L4	27	"	"	
L5	7	"	"	
L6	15	"	"	70%
7 Mc. Band				
L1	4	30*	close-wound	
L2	15	30†	"	8
L3	5	30*	inter-wound	
L4	15	30†	"	8
L5	5	30*	close-wound	
L6	10‡	30†	"	5½ 60%
14 Mc. Band				
L1	4	30*	close-wound	
L2	6½	26*	"	3½
L3	4	30†	inter-wound	
L4	6½	26*	"	3½
L5	3½	"	"	
L6	6	22*	"	3 70%
28 Mc. Band				
L1	3	30*	close-wound	
L2	3	"	"	1
L3	3	"	inter-wound	
L4	3	"	"	1
L5	2	"	close-wound	
L6	2½	26*	"	1 40% †D.S.C.

*Enamel

†D.S.C.

BAND SPREAD

An essential feature in any Ham receiver is band spread which is obtained by the tapped coil method. The band-set condensers are 100 pF. variable condensers across the whole coil, the band spread condensers, which are ganged to the main tuning dial, consist of 0.30 pF. variables tapped across varying portions of the grid coils as shown in the coil table. Other methods could of course be used but the one shown is simple to adjust and gives no trouble.

COILS

The second oscillator coil and the b.f.o. coil are both home-made and consist of electron-coupled oscillators using plenty of capacity for stability. Both tuning condensers consist of 465 Kc. padder condensers (variable) and run 1 believe up to about 800 pF.

The second oscillator coil contains 20 turns of 26 gauge d.c.c. wire wound on a 1½" former, cathode tap is 5 turns from the cold end. The padder condenser is strapped across the top of the former with its adjusting screw upward and a hole is drilled in the coil shield to enable it to be reached by a screw driver for adjustment of frequency.

The b.f.o. coil is made in a similar manner but contains 90 turns of 30 gauge enamel tapped a quarter of the way up from the cold end. Of course a commercial unit could be substituted here, but personally I prefer if possible to make my own.

The coil table is probably remarkable for the variety of wire gauges used, but the wire used just happened to be that on hand. The aerial coils (L1 and L2) on 3.5 Mc. band are wound with a space of 1/16" between them; on 7, 14 and 28 Mc. bands the aerial coil L1 is wound as close to the secondary as possible. On 3.5 Mc. the primary L3 of the r.f. transformer is over-wound over the cold end of the secondary L4 and inter-wound on all other bands. Oscillator coils L5 and L6 require a little juggling with the spacing between them. If it is too loose oscillator stops, if too tight the oscillator will super-regenerate and cause birds across the band. A lot will depend on the oscillator valve, both to its type and age. Close coupling between the aerial and r.f. coils may bring thoughts of lack of selectivity but selectivity is determined mainly in the i.f. stages and causes no worry.

It will be noted from the coil table there is no band spread on the 3.5 Mc. coils, both variable condensers are placed across the whole coils.

POWER

This is external to the receiver proper and consists of a standard 385-6-385 volts 100 mill. transformer, 80 rectifier and a two section filter. If the receiver is to be used exclusively with a loud speaker, a single section filter may be enough, but for quiet listening with headphones the two section filter is essential.

The power supply was made separate mainly with the idea of removing a prolific source of heat, and secondly because there was not enough room on the chassis.

MECHANICAL DETAILS In order to make a good job that would not fall apart, and at the same time be reasonably easy to work, the 17" x 10¹/4" x 3" chassis was made of 1" aluminium. A rigid assembly is essential for the chassis if signals are going to stay on the nose. There is of course no reason why a modern steel chassis could not be used with equal results.

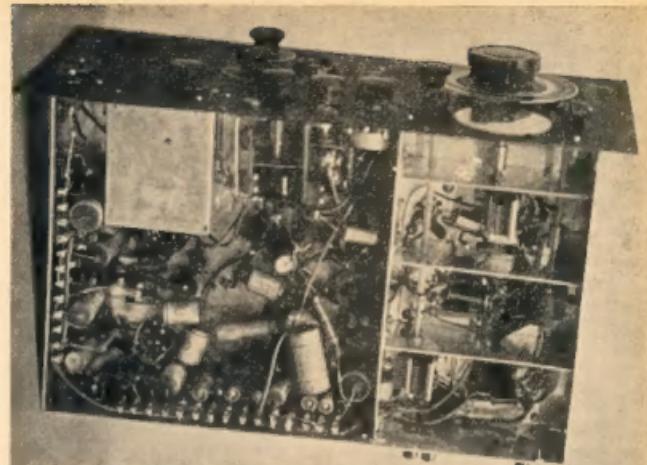
Mounted on the right hand corner of the chassis (as shown in the top view of the receiver) is the shielded compartment containing the whole of the first three stages of the receiver, namely the r.f. frequency changer, and h.f. oscillator. This is made of 18 gauge aluminium and divided into three compartments by baffle plates, and finished off by a well fitting lid. This shield measures 8¹/₂" long, 6" wide and 5" high; each compartment inside is 2¹/₂" wide.

As shown in the under chassis view, each of these stages is shielded by cross baffles which also serve as mounts for the band-set condensers. Under-shielding is finished off by a cover plate which fits over the whole of the under shielding not shown in the photographs. Also in the under-chassis view is the bottom shield of the b.f.o. and second oscillator section, this is the almost square aluminium box visible about half-way up the panel. The panel by the way is a Trimax steel job 19" x 10¹/₂", finished in black crackle, very rigid but hard on the home builder's tools.

LAYOUT The receiver controls as shown on the panel are bottom row (right to left): r.f. band-set condenser, oscillator band-set with dial and pointer, serial band-set, r.f. gain control, audio gain control, speaker jack, noise silencer threshold adjustment, and phone jack. Above silencer control is the a.v.c. on/off switch and at extreme left two s.p.s.t. switches, b.f.o. on/off on top, and B₁ on/off lower. The main tuning dial directly over the oscillator band-set condenser is an "Aegis". Although any smooth-running dial will be satisfactory, with the amount of band spread and tuning rate given in the receiver, about a 10-1 vernier drive ratio is ample; too high a ratio is not necessary. To the left of the "Aegis" dial is the EMI magic eye and to the left of it above and below the selectivity control C25 and the phasing condenser P.C.

Reverting to the top chassis view, in the top right hand corner is the r.f. stage, followed by the converter stage (BSAT) and the h.f. oscillator (6JS). Along the back of the chassis the two square shield cans are the two 1600 Kc.i.f. transformers with the 6K7 i.f. amplifier between them. Following are the 6L7 second converter and the 6J7 noise amplifier, immediately in front of the 6J7 is the noise transformer, followed by the second oscillator shielded coil and the b.f.o. coil; each with their respective tubes to the right.

Immediately to the right of the noise transformer are two square i.f. transformers, these are the input and output



Underneath view of chassis showing R.F. sections and shielding also shield of B.F.O. at the left.

transformers for the crystal filter which is situated just in front of the two transformers, the only part visible in the photograph is the selectivity control condenser C25. Following the filter output transformer is the first amplifying valve (6K7 or 6UTG), a 465 Kc. transformer, the second amplifying tube and third detector (6BTS or 6G8G) with the last i.f. transformer on its left. The 6V6G output tube is immediately behind the third detector, and the EMI mounting is shown just to the left of the 6V6G. The fixed condenser, visible between the EMI and the i.f. transformer shield, is the 0.05 μ F. between EMI grid and earth. The 6H6 noise rectifier is the small metal tube between the crystal input transformer and the second oscillator coil can.

GENERAL DETAILS As a receiver of this type is unlikely to be built by a beginner, no detailed description of the wiring will be given, the general layout is well shown in the photographs and can be followed easily. For the sake of later servicing most resistors and by-pass condensers of the i.f. stages and noise silencer are mounted on resistor strips running along the back and one side of the chassis. These can be wired up before they are actually installed and it is only a matter of a short connection between the strips and their associated valve sockets when they are actually bolted in. In this receiver when first completed, all except one or two condensers were on the strips. Changes made later account for the surplus components shown in the underneath view.

The crystal used is one working with an air gap, and care should be taken to mount it in a horizontal position, so that

the gap will remain as a uniform gap. When first installed the one used was mounted vertically and caused many hard things to be said about the poor results of crystal filters, until it suddenly dawned on me that the crystal was supposed to work with an air gap that should stay put and not have the crystal moving round between the plates. So the mounting was quickly swung through 90° and all our troubles were over. However don't forget that sometimes the crystal gets dirty, just like the ones do in the transmitter and it may need a clean up now and again, especially if it is an open holder.

The coils in the original receiver are all wound on valve bases as they were the only materials available at the time, to avoid mistakes when plugging in, the oscillator coils are wound on 5-pin bases, and the r.f. and converter on 6-pin bases. However it would be better to use the modern Trotil 14 formers for more than one reason. Firstly they are much better electrically, secondly the thermal co-efficient is much less than bakelite, thirdly they look better, and fourthly (this one is quite important) there is less risk of damaging the windings with continuous band changing. Six-pin sockets grip quite firmly and it is easy enough to pull turns off when changing bands in a hurry. Different bands can be colour-coded, with the oscillator coils given a distinctive marking in addition.

ADJUSTMENT Lining up of the receiver is best carried out in stages as follows:

- 1—Lower frequency i.f. stages.
- 2—High frequency i.f. stages.
- 3—Front end of receiver.
- 4—Noise silencer and crystal filter.

The lower frequency i.f., if used with a crystal filter, is best adjusted by wiring the crystal into a simple triode oscillator, the frequency of the crystal as an oscillator will be slightly different from its frequency as a resonator but will be accurate enough for the first line up; 45 volts or less on the plate will give ample output. For the 1600 Kc. stages, if no signal generator is on hand, an easy way out is to use a b.c. oscillator coil with a standard single gang condenser; this should go to round about 2000 Kc. and cover this section nicely.

Before lining up short out the crystal filter and turn the noise silencer control to maximum bias thus cutting out their two functions and leaving the set as a straight super without trimmings. Now proceed to line up the I.F. I.F. stages starting from the third detector stage and working forward to the grid circuit of the 6L7 second converter. It should be necessary to decrease the coupling between the crystal oscillator and the various stages as more stages are lined up. When all 465 Kc. stages are peaked as shown on the magic eye, set your signal generator (if you have one) or home-made oscillator on 1600 Kc. (you can check this frequency on most b.c. sets) and loosely couple the output into the grid of the second mixer. Now vary the condenser across the second oscillator tank starting from minimum until output is indicated in the EMI, then proceed to peak both 1600 Kc. I.F. transformers as above.

Now line the front end up either on a steady signal or one from a monitor or signal generator. When the receiver is working to your satisfaction at this point, line up the noise silencer, by pulling out the h.f. oscillator tube and feeding a 1600 Kc. signal into the first 1600 Kc. stage, via the grid circuit of the 6SA7, of sufficient strength to close the EMI. Turn the silencer full on, i.e. to the earthed end of the variable resistor R43 and peak the noise transformer by the MINIMUM output shown on the EMI; back off the silencer control until the signal comes up in the magic eye and re-peak the transformer. Continue this process until the transformer is right on the nose. In normal operation the silencer should operate with about an eighth of the silencer control cut in, if much more than this is used the gain ahead of the silencer is too great and should be cut down by increasing the bias on the 1600 Kc. amplifier. Too much gain here will cause blocking of the silencer and second converter on strong signals.

With the silencer operation OK turn the threshold control to the off position and adjust the crystal filter as follows: Plug the crystal filter back into position, and with the crystal still switched out, a clean signal is tuned in and peaked; and then the b.f.o. switched on and adjusted for the desired pitch of note. Tune the receiver through zero beat to approximately the same pitch on the other side, now switch the crystal in by

turning the phasing condenser P.C. from zero, and adjust the phasing condenser until the signal is practically eliminated. The filter is now adjusted for single-signal reception, and with the exception of very strong or modulated signals it will be found that signals are only received on one side of zero beat. For c.w. work the crystal should be left in at all times, as in a crowded band it is easy to loose a weak signal if the filter is set after the signal has been tuned in. For phone work the phasing condenser is set at the point of maximum "hiss" noise.

In conclusion the 6L7 is replaceable by 6L7G and according to A.W.A. if they are unobtainable, a 6J8G can be substituted for the 6L7G without any change of socket connections; the connection to pin No. 6 being ignored and the valve treated as a 6L7G. The reason of course is that the 6J8G is really a 6L7G plus a triode oscillator. The 6SA7 may or may not need neutralising. In this receiver it was not necessary and it works as well on 28 Mc. as on 7 Mc. If required a very small condenser of 1 or 2 p.f. between the control grid and the oscillator grid will do the trick.

The control knob to the left of the noise silencer control is not used at present, originally it varied the amount of b.f.o. voltage to the 6BTS but as this idea proved an unnecessary refinement it was cut out. It could be used for a variable condenser to give a variable beat note. The hole between the magic eye and the "Aegis" dial is the remains of another experiment now defunct.

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CATHODE COUPLED OSCILLATOR

By Dr. A. F. TAYLOR*, VK3AT

In my case, use is made of an EF50 in the buffer stage, with an r.f. choke of 2.5 mH. in its plate lead, and this is capacity coupled to a 6V6, also operating in class A, with a coil of 70 turns, 34 s.w.g. enamel, on a 1" polystyrene form, shielded by an old i.f. transformer can. The tuning coil L1 consists of 15 turns of 22 s.w.g. enamel on a 1" polystyrene form, with an iron dust core fixed in the axis of the coil.

The condensers coupling the tuning unit to the valves in the oscillator are 3-30 pF. air trimmers. These are just the thing as their capacity can be readily adjusted to give greatest stability.

This circuit is very stable on the 3.5 and 7 Mc. bands, but does not oscillate readily in the regions higher than 10 Mc.

The coupling between the tuned circuit and oscillator valves is very small, 2 to 5 pF. In other words variations in effective inter-electrode capacities of the valves due to variations in plate voltage and tube heating have negligible effect on the frequency determining circuit.

A voltage regulator in the v.f.o. power supply is therefore not as essential as in most other types of oscillators.

The coupling between cathode of the cathode-coupled oscillator and the grid of the following buffer amplifier is a variable 3-30 pF. air trimmer. This is used at the smallest possible value to obtain reasonable output, to further help the electrical stability of the v.f.o. Also taking the output from the cathode helps this stability. Output may be

QUESTIONS & ANSWERS

Following a suggestion by VK2ALR and others recently, a Questions and Answers column makes its debut. It is intended to act as a clearing house for your queries and also your knowledge and experience, and you are herewith invited to use its services.

If you have a question of a technical nature send it in to Q. & A. "Amateur Radio," Box 2611W, G.P.O., Melbourne, and if suitable it will be published in this column. If you can answer any of the published questions you are invited to send same to the above address. All such replies will be forwarded to the questioner (if he has sent a stamped addressed envelope of suitable dimensions) and also a summary printed.

We reserve the right to reject any question as unsuitable but apart from this, this column's operation is up to YOU. So let's have your queries. To start the ball rolling, here are a couple of things we would like to know.

Q. 1—What is the velocity factor of nylex twin power flex?

Q. 2—Why are filter chokes put in the high tension lead where the windings have to be well insulated from the core when it appears that they would work equally well in the return lead at approximately earth potential?

REVIEW.

MICRO-WAVE TECHNIQUE

R.S.G.B. Publication

This little booklet is a must for every Amateur's bookshelf. For a general guide to micro-wave equipment from the Amateur viewpoint it has no equal, both for the u.h.f. man and even more for those who would like to know just what goes on up there.

A description is given of the operation of each of the components which are in present use; cavity resonators, wave guides, aerials and radiators, crystal mixers and detectors, and the various types of tubes; klystrons, travelling wave tubes, lighthouse triodes, magnetrons, etc. No mathematics, no formulae, but after perusing Micro-Wave Technique one has a very good idea as to which frequency these gadgets work at, their power, and their usefulness to the Amateur.

No specific circuits for Amateur transmitters or receivers are given, purposely since at present all work has to be done with equipment which is round and about. However a chapter describes the sort of set-ups which would be suitable and this should give some ideas to those who are interested.

Definitely great value for its small cost.

ode resistor used is 2,000 ohms, but again is not critical.

The v.f.o. should have its own power supply and 100 to 200 volts plate supply is needed. All three stages of the unit draw a total of 35 Ma., at an operating potential of 120 volts.

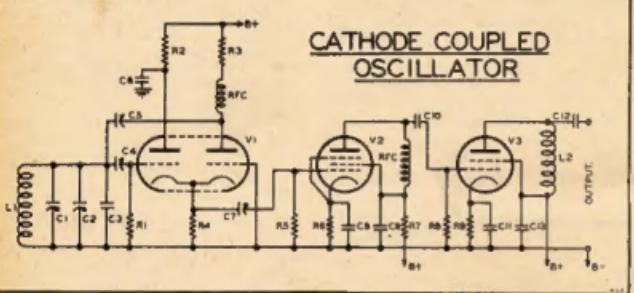


Fig. 1

R.F.C.—2.5 mH.
R1—100,000 ohms, 1 watt
R2, R3, R4—2,000 ohms, 1 watt
R5, R7—5,000 ohms, 1 watt
R6—150 ohms, 3 watts, wire wound
R8—330 ohms, 3 watts, wire wound
V1—6N7
V2—EF50
V3—6V6

taken from the plate of the second triode where slightly more i.f. voltage is available, although it may affect the frequency more.

The v.f.o. at the writer's station operates on 4.7 Mc. feeding a two stage transmitter, the first stage being used as a tripler, and the second as a straight p.a. for operation on 14 Mc.

Results have been good from the point of view of tone and stability of the oscillator, and as with other types of oscillators, mechanical stability is essential.

The values of plate dropping resistors are not critical and may be any value between 500 to 16,000 ohms or more, and need not even be equal. The cath-

C1—150 pF. variable
C2—50 pF. variable
C3—50 pF. mica
C4, C5, C7—3-30 pF. air trimmers
C6—0.1 uF. paper
C9, C13—0.01 mica
C8, C11—0.05 uF.
C10, C12—100 pF. micas
L1, L2—see text

This circuit is similar to the Franklin oscillator in some respects. It is a two terminal negative resistance type using three triodes, or a twin triode valve. One valve acts as a cathode follower amplifier and the other as a phase inverter.

The output is taken from the common cathode connection of the triodes. This circuit is not original and was shown to me first by VK3GU, who has tried it out, and it has some advantages over oscillators using single valves.

The dynamic stability is good, there is very little frequency drift during the warming up period after switching on, and variations in plate supply voltage of moderate amount do not affect the oscillator frequency. This is because

A KILOWATT FOR YOU!

E. A. CHARLES, * VK5YQ.

Yes sir, one thousand little watts all together, and just where you want 'em! Nothing new—you've read it all before, but did you think about it?

Recall how you've marvelled at the way a certain few W6 stations push your S meter over when the band is only fair? They run 1 kilowatt though, you say, and have a three element beam. Yes, but if they were operating under your transmitting conditions, they would need an input of 20 kilowatts to shoot over the same signal! And do you even think of the thousands of W stations you've never heard, and are not likely to ever hear?

This way you will comply with para 91 of our Handbook and save many a faithful 807 from an untimely demise, not to mention the coal shortage.

How?—simply by using and concentrating a few of the many db's that are going to waste. When you want to read in bed you don't try it by moonlight. And when you ring the YL over trunk lines, you don't sing or recite your 88s—you want her to hear you, and hear her say she will QSL.

So, firstly, your modulation. Pro-

*193 Young Street, Unley, South Aus.

gramme compression of 3 db is common broadcast practice—it is as effective as doubling the stations power. There is a circuit in the 1947 A.R.R.L. Handbook that given 25 db. of clipping of speech peaks. It is generally accepted that the average level of modulation on speech is 30% when the peaks reach the 100% modulation level (What yours reach is often discussed.) In round figures, the difference in input level to increase from 30% to 100% modulation, is 4 db. Fifty per cent to ninety per cent, is a rise of another 5 db in input level, a further db. bringing up 100% modulation.

If you can accomplish 7 db. of compression, you have a power gain of five times. Your 100 watts are equal to an input of 500 watts without compression.

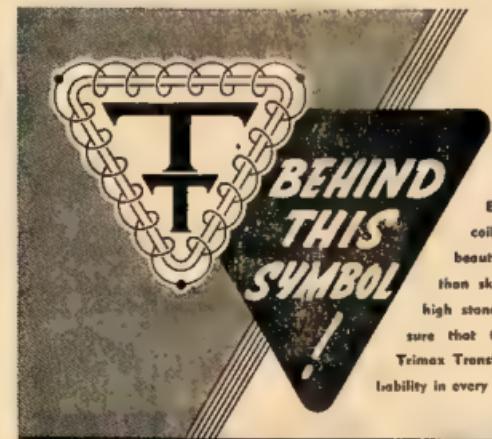
Now, let's work on it. The maximum possible gain from a two element beam is 5.7 db. (radiator and parasitic director, tenth-wave spacing—"QST", April 1947). Up to 7 db. with a three element, to 9.7 db. from a wide-spaced four element beam. However, let's assume you get, in practice, a 5 db gain over an ordinary half-wave antenna. That is a power gain of three—your 500 watts have now become equal to an input of

1,500 watts. Settle for two-thirds efficiency—you have 1 kilowatt in anyone's language!

Well, what are you wasting time for? The cost—for compression—another tube or two and a few bits. The beam yes, a few quid, depending on how far you have deteriorated in that services-acquired habit, "scrounging."

However, a certain amount of time and hard work are required, to make the compression/clipping behave, and to properly adjust the beam. The first is very necessary, the latter very desirable. Neither are greatly involved or complicated.

There are some who will say it takes the fun out of the game—like shooting rabbits by using telescopic sights. But maybe you, too, are fond of roast rabbit. Don't expect miracles, though—you'll learn a lot by listening. And don't be surprised when you see the local QRN at work next day, and he tells you he collected a couple of new countries the night before (with his full wave zeppl and 20 thin watts). You'll notice he looks a little haggard though, and has difficulty in keeping his eyes open. Of course anything goes with wide open conditions, if you wait for the competition to go to bed and the band is really wide open. After all 12 db. is but two S points!!!



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QRP OPERATION

BY R. J. WHYTE*, VK2AHM

For the benefit of those interested, the writer outlines hereunder equipment used during recent successful tests on 28 Mc. Power input to the final stage was varied from 4 watts to 0.2 milliwatts.

Transmitter—6K7GT e.c.o.c.o., 6K7GT doubler, HY60 final, plate modulated by battery powered 1J6G operating in Class B, percentage of modulation being somewhat restricted by method of application (normal method of modulating both plate and screen could be applied to advantage—Ed.). For QRP operation the gain control is simply turned back to the proper setting for correct modulation level.

Aerial System consists of series of 14 Mc. vee beams arranged to provide low angle radiation in selected direction. Seven wires, 272 feet long, radiate from central pole 45 feet high, to the perimeter poles 12 to 15 feet high. Wires are of 12/14 s.w.g. galvanised wire and spacing is approximately 51.5 degrees. All feeders enter the shack as a cage and are spaced 4" apart. Required two wires being selected by flexible leads. Feeders are tuned, using either series or parallel arrangement and are about fifty feet long. The system as a whole works very well on both 28 and 14 Mc

*Willow Point Station, via Wentworth.

SHORT CIRCUITS

SIMPLE BUT EFFECTIVE KEY CLICK FILTER

After listening to the large number of stations radiating key clicks these days, the simple but effective filter which I use may be of some help to those seeking a remedy.

Secret of the system is the use of a wet electrolytic condenser. A dry type has been tried with negative results.

I have keyed final amplifier centre tap, buffer cathode, and crystal oscillator cathode with the same results.

The family b.c.l. set aerial is connected at one end to the same mast as the transmitting aerial, and no trace of clicks are evident in that receiver.

The 8 UF. electrolytic is connected directly across the key contacts with the positive side to cathode of the keyed tube, and the audio chokes placed in each lead. The leads from the cathode to key are in shielded wire and earthed. The chokes do not appear critical

Power Supply.—6 volt vibrator supply providing 25 Ma. at 160 volts was used for normal operation. Vibrator unit was provided with taps for QRP operation.

Results achieved have been most gratifying; but in many cases do not agree with VK3CO's "Story of the Decibel" (details of contacts submitted by the author reveal that unknown and unpredictable factors involved precluded accurate comparison—Ed.).

as the ones in use at present are the audio chokes found in old fashioned receivers.

If you connect the condenser back to front or use a "sick" condenser, current will appear as though the key was closed.—VK2QL.

MOTOR FOR ROTARY BEAMS

VK3SP has found a use for the 25 volt motor generators which are part and parcel of a lot of disposal equipment, particularly i.f.f. gear. The field windings are disconnected from the 24 volt driving armature and connected in series with the 240 volt winding. With these connections one has a motor which with suitable gearing, will turn a beam using either 240 volts a.c. or even 300 volts d.c. from the normal power supply. Current is about 40 Ma. using d.c.

D.I.G.

VK3QO, our scribe for Fifty and Up, having the doubtful advantage of having an illegal broadcast transmitter in close proximity, came home to find press photographers busily engaged snapping his poor old 50 Mc. folded dipole from various angles, under the impression that they were getting a real pukka scoop photo. He had to disillusion them, of course. The same night, 12 midnight to be exact, more pressman, more photographers, more annoyance. What he would like to know is who sent them to VK3QO. Anyhow fellows if there are no more 50 Mc. notes, you'll know VK3QO is in a quiet location, NOT working DX!

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FIFTY AND UP

Compiled by VK3QO, to whom all contributions can be sent

What, no DX? Well, hardly any, apart from a contact between VKEGB and VKEAGS at 9 pm, 14/5/48. Not bad, but not good in QSOs.

SRT also contacted SAGS that night and again on 14/5/48 at 10 pm.

VKEBR has been hearing a station on 4 Mtrs 1000 hrs, 1st or 2nd class of course, throughout the month. SAGS was in and out, never strong apparently, an ant matric CQ going with occasional spurs. In one VK accent, beam was pointed just East of us.

Some DX from Mr. Faithorne, Foster, 9/5/48, worked TAB across Bass Strait. Signals were not so good this time due to rain or something in the flight path.

It is reported by SPG that W6UXN heard a VK5

date unspecified (but about beginning of May) about 8 pm our time.

COMMERCIAL HARMONICS

We are subjected (equally rightly) to continual reminders of the "harmonic radiation" from Ham Stations. Why is it that these HVN can continue to run their rig in such a poor manner that man-made spots occur in the 50 Mc band? It would not be so bad if one could identify it, but as it is one needs to walk hours before any call signs is given. Why not tell them to give their call sign any even quarter of an hour?

VIC 3 FIELD DAY

The 50 Mc Field Day on 9/5/48 was rather restricted this time; only 3CL, 3U1, 3DI and 3US/2V1 were on, though SRT had been received to Hallstatt, not for his transmitter, but for his receiver. 3U1/3V1 were at Arthur's Seat. Rex and Gwen used their usual portable with 5 watts to a 656 final. They worked all portable stations and 3MK, 3AT, 3PD, 3AB, 3ABA, and 3GE fixed portable at 3MK. 3ABA had a 100 watt 4 element beam, 3AT a 4 element beam, 3AB a 4 element beam, 3ABA and 3AT using the beam at various heights and it appears that with a very low aerial signals disappear in some directions only.

3ABA used his new mobile rig consisting of a c.t.o. doubler and a doublet into 352 doublet from p.p. 807a. Modulation was fine according to book, modulating the v.t.o. Power from Type 3 Mark II power pack. Receiver was converter into two 1/f.s. into super regen and audio. He worked 3PG, 3U1, 3MK, 3ABA and 3AT from the top of the Divide Road, past Hall Hill. 3ABA had a vertical mast and panel and looked nice; aerial about half wave 3U1, with friend JAPP, borrowed from Mr. Mayor (4500 feet), near Double, where they heard Melbourne stations up to 80. Their greatest surprise was the contacts with 3AT, 3ABA, there being plenty of mountains in the stretch. 150 miles between them, 3V1, 3ABA, 3HT, 3ABG, 3PG and 3MK were all worked. No scope to hand on rig used.

VKA FIELD DAY A WASH OUT

The "Grand" Field Day on the 1st and 2nd of May was washed out due to heavy rain and was held on the following Saturday, 3rd May. 3U1 and 4XG operated from Maleny, 4K7 from Tamborine Mountain and 4DQ from Mt. Kynoch, Toowoombee, with 4LW in Gympie and the Brisbane gang operating from home QTH. Nothing was heard of the Bundaberg group though 4KQ and 4EJ had their bands aimed north quite high. Both 3U1 and 4EJ and 4ZU-4XO on 144 Mc. (Tamborine to Maleny) were R9 plus plus. Don't know what the distance (85 miles) constitutes a record at present? 4DQ and 4K7-4XG-4EJ-Maleny were R9 plus plus on 80 Mc. 4DQ was pleased with his new 100 watt 4 element array, a duplicate of the one in use by 4ZU on 50 Mc. also. The following Brisbane stations were contacted on either 60 or 144 Mc. 4HR, 4RL, 4XH, 4K8, 4RY, and 4TV. Signals on 144 Mc. were very poor, though 4K8 and 4TV (from Brisbane) by 4CR from the following: 4TV, 4K8, 4XH and 4ZU. Contacts were made by 4TV and 4HR from their home QTHs but although the Maleny man were heard, 4CR could not be heard up there. In view of the good results to be won it was surprising that the Brisbane boys did not participate.

SGF GOES MOBILE

From SGF via 3V3 we learn that SGF has installed a mobile rig in his wagon, and on the 5/5/48 made a trip to Gawler, about 25 miles from Adelaide, and gave the boys a running commentary on the trip. The SGF rig was set up in Gawler, but when he (SGF) got off at 5AM he was still at Gawler. Adelaide signals dropped out, evidently due to surrounding buildings, although the Adelaide boys could still copy SGF. It was felt 6RT, using a vertical antenna, got him best. 6QF rig was driven on telephone, 626 converter to car radio for receiver and a vertical coax dipole antenna. Most of the Adelaide boys were using horizontal antennas but they still seemed to get through OK. He also made a trip to the Adelaide hills and signals were 50 plus. Stations on included SGL, 3GB, 3EG, 3HD, 3QR and 3RT and 4JD.

ACTIVITY IN VK8

SGF and SGH have both been putting good signals into Tasmania, apparently quite recently, but it was only recently that they have actually been heard. SGS, with friend Reilo Evingham, took the latter's converter and receiver to the hill behind the High School, and heard the call sign of SAGS a distance of 90 miles. Second week and SGW took portable to Tasmania and heard SGS at Harvey and 3FO and 6OB in Perth but signals not too good due mainly to very heavy QSN. May 1st saw the opening of 144 Mc band with

five stations—5GB, 6DF, 6FU, 6KW, 6LW and all there dead on time. An enjoyable night was spent by all (especially 6LW), while the other four were trying to locate 6KZ and 6DF. This promises to be a very popular band and we hope to give news of some further contacts next month. May 9th 6KZ's signals were heard by 6AB at Burlington, a distance of 15 miles. This is the record in VK8 up to the time of writing.

144 Mc D QEST

From Bill Hartley

Proceedings in the 144 Mc spectrum now in use are very interesting as compared with this band seems to be a very clean one, due to dearth of harmonics and also the absence of certain direct effects. Working conditions seem to be superior to the old 166 Mc band in that signals are stronger than of years, probably due to the change over to horizontal polarisation. Some signals are weaker during day light operation, and time of day seems to play their part. The answer, it can only be conjectured at location, time and weather conditions play their part.

There is no doubt that a horizontal array certainly provides greater signal intensity and would be more the local medium for communications than a point to point communications than at present. The working of local contacts can be well provided for by vertical polarisation. The happy medium can be achieved when the form of antenna could be the vertical in a couple of places, thus enabling a quick look around the band, and the horizon providing a strong directional signal where needed. Rotating the beam to all points of the compass and, at the same time, carrying out a search over the band, would be a task found to be slow and laborious. As things stand quite a few stations are missing out through being outside the main lobes of the beam. Cross polarization is also bound to occur, and can be overcome once again, if found, by changing over to the appropriate antenna.

Activity for the month showed that the old 166 guard are showing marching into pare, the two stalwarts in VK1 in VAK and 3EM are now making their mark, and their second members, consisting of the ship's crew in VK1, are way in the lead. The ship's 3EM is still in use, while the modified SGK322 plus a receiver of the same type, JAK1 opened on the new band with a new shack as a new signal from a pair of GUVs p.p. o.p., 6MV modulator, 10 watts. 3LRT makes himself heard with a 100 watt 4 element beam, 3ABG with 4 watts, together with a 1000 super regen ringer. Similar type of outfit is in use at 3ME, who is making his debut in masking himself heard well even with 3 watts.

3EM at Foster now on 144.2 Mc., working on Sunday from Mt. Pleasant, will be a valuable link on field day operations. Guard in use is a SGK322 with 10 watts; coupled to either a Franco or series phased array or the six element wide spaced stacked beam. There is another newcomer to the v.h.f. band for the present, 3V3, using a modified SGK322 with 10 watts and a 9000 super regen to a simple horizontal dipole. 3ABA/3V3 are on 144 Mc. also now using same rig as that on 166 Mc. Antenna is a horizontal three element beam and 3AV, receiver. They have a few QSL cards, and the author, Bill Hartley, gives them very appropriate assistance in erecting their beam which is on top of their 10 Mc. beam 8 feet high.

Things are booming in VK8 at present according to 3V3, and the following stations are active: 3V1, 3V2, 3WZ, 3AGB, 3ABD, 3PZ, 3PZ, 3V1, 3V2, 3NO, 3MK, 3UV, 3ABR, 3OC, 3ADT and 3RD. 3VW is on the job with 15 watts input to a SGK322 transmitter, to a four element horizontal beam and receiver on 144 Mc. 3LRT up at Wentworth Falls, using the Blue Mountains, is working to work a 5 miles hop to 2ADT at Cremorne. 3VW's beam must be 6 ft. as his signals find their way into 2OC's (at Woyng) indoor antenna. 3KJ still interested in radio-controlled model aircraft.

144 Mc activity in VK8 is associated with a great burst of activity, the most notable being the old 50 Mc, which is somewhat neglected at the moment. However, with the mid-winter peak in sporadic E approaching we may enjoy a little Interstate DX again. 3V3 is active on 144 Mc, using a modified SGK322 with 10 watts, and 3V1 is active on 144 Mc for transmitters and quite a few for receivers also. 4 and 6 element beams are popular as antennas and signals across the town have been extremely good. 4ZU tried out the 16 element beam described in the Handbook and at the hook says it yielded a "typical" result. 3V3 is active on 144 Mc at Manly, some 8 or 10 miles east of town, and is very handy link—something we never had on "50".

The fifth district is slow on making the new band, this no doubt is due to much 50 Mc tests.

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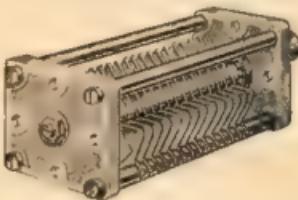
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NEW SOUTH WALES

Secretary—Wal Nye (VK2XU1), Box 1734, G.P.O., Sydney.

Meeting Night—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.

Divisional Sub-Editor—R. Deal, 209 Oberon Street, Zone Correspondents—North Coast and Tablelands

P. A. H. Alexander, VK2PA, H.H. St., Port Macquarie, Newcastle, E. Baker, VK2FP, 13 Skelton St., Hamilton, Newcastle and Lakes: W. Hawkins, VK2YL, 27 Comfort Ave., Cessnock Western, S. Hart, VK2SH, 116 Bungan Rd., Nymagee, South Coast and Tablelands: R. H. Rayner, VK2DZO, 42 Pett St., Mayfield, S. E. N. Arnold, VK2QJ, 673 Forrest Hill Ave., Albury.

VICTORIA

Secretary—A. S. D. Evans, VK3VQO, Box 2611W, G.P.O., Melbourne, Telephone FJ 6997.

Meeting Night—First Wednesday of each month at the Rad. & Scho. Melbourne Technical College.

Zone Correspondents—North Western: B. R. Mann, VK3KWB, Quakers Hill, Western: C. G. Waring, VK2WGL, 579 St. Kilda Rd., Melbourne.

E. Sachne, VK3B, 17a, Radnor Street North, Balarat, North Eastern: D. Tacey VK3DW, 18 Herold St., Shepparton, Far North-Western Zone: Harry Dobbyn, VK3MF, 42 Walnut Ave., Mildura, Eastern Zone: J. D. Chiver, VK3DI, 20 Smith St., Leongatha.

FEDERAL

FREQUENCY ALLOCATIONS

As mentioned in the Editorial in this issue, certain new frequency allocations have been made as a result of negotiations with the P.M.G. Department. Listed below are the bands that may be used as from the 1st June, 1944.

8.5 to 9.8 Mc.—A1, A8.
7 to 7.2 Mc.—A1, A8.

6.0 to 7.0 Mc.—A1, A3.
5.0 to 5.8 Mc.—A1, A3.

20.0 Mc.—21.2 Mc., A1, A3, FM.

26.0 to 30.0 Mc.—A1, A3.

40.0 to 54.0 Mc.—A1, A3, A5, FM.

144 to 148 Mc.—A1, A3, A5, A8, FM, Pulse.

888 to 2075 Mc.—A1, A3, A5, A8, FM, Pulse.

1445 to 1455 Mc.—A1, A3, A5, A8, FM, Pulse.

2800 to 2455 Mc.—A1, A3, A5, A8, FM, Pulse.

5000 to 8500 Mc.—A1, A3, A5, A8, FM, Pulse.

10000 to 16000 Mc.—A1, A3, A5, A8, FM, Pulse.

20000 to 36000 Mc.—A1, A3, A5, A8, FM, Pulse.

36000 and higher Mc.—A1, A3, A5, A8, FM, Pulse.

ANNUAL REPORT

The following is the President's report submitted to the Easter Convention of the V.L.A.

First of all, as you are no doubt aware, most of the time has been occupied with the finalizing of the Federal Constitution under which we are operating, and I would like to see a hearty vote of confidence given to the Admin. Officers who have done in this direction. He has put many hours of work into this enormous job and I feel sure he must be very glad that the task has come to an end.

During the year we have undertaken the printing of several Contests Certificates, although the previous Contests only required membership certificates, it was felt necessary to furnish certificates for the 1944 and 1947 Contests, as we have had many inquiries from overseas stations and our prestige was at stake.

Another important point was that first contester who had quite a number printed which should last for about two or three years and possibly longer. We asked during the year for an advance from Divisions to defray expenses and we had a favorable response from most of the Divisions. The actual amount remitted from each Division was based upon approximate figures of membership in the Divisions. In the case of YES we asked for £25, V.K.S. £25, V.R.A. £10, V.E.S. £20, V.E.S. £15, and V.K.T. £15. Total £100, the estimated cost of printing.

Actually, there was a sum considerably more than that figure. On the present per capita basis for Divisions, the amount requested would now be for YES £43/10/-, V.R.A. £20/10/-, V.E.S. £18/10/-, V.K.S. £10/10/-, V.E.S. £7/10/- and V.K.T. £10/-, a total of £114/10/-.

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We think we can

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI—Sundays, 1100 hours EST 7190 Kc and 2000 hours EST 59.3 Mc. No frequency checks are available from VK2WI.

VK3WI—Sundays, 1130 hours EST 7196 Kc (Special Broadcasts on the 1st Sunday in February, between 2000 and 2200 Kc every 10 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI—Sundays, 0900 hours EST simultaneously on 7109 Kc, 14342 Kc and 52.004 Mc. Frequency checks are given two nights weekly, and the hours are announced during the Sunday broadcasts.

VK5WI—Sundays, 1000 hours SAT on 7196 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc. bands.

VK6WI—Sat. 9.30 a.m. W.A.S.T. between 7000 Kc and 7200 Kc. No frequency checks available.

VK7WI—Second and Fourth Sundays at 1030 hours EST on 7174 Kc. No frequency checks are available.

QUEENSLAND

Secretary—G. G. Attagenus, Box 828J, G.P.O., Brisbane.

Meeting Night—Last Friday in each month at the State Service Building, Elizabeth St., City.

Divisional Sub-Editor—H. T. McGregor, VK4ZL, "Moque" Field Rd., Windsor.

SOUTH AUSTRALIA

Secretary—E. Barber, VK5ND, Box 1234K, G.P.O., Adelaide.

Meeting Night—Second Tuesday of each month at 17 Waynes, St. Adelade.

Divisional Sub-Editor—W. W. Parsons, VK5PS, Esplanade, Henley Beach.

WESTERN AUSTRALIA

Secretary—W. E. Coxon, VK5AG, 7 Howard St. Perth.

Meeting Night—Second Monday in each month at the Builders' Exchange, St. George's Terrace, Perth.

Divisional Sub-Editor—V. K. SWT, Mr. Doug Cough, May Street, Watermans Bay, W. Australia.

TASMANIA

Secretary—J. Brown, VK7TB, 12 Thras St., New Town, Telephone W. 1328.

Meeting Night—First Wednesday of each month at the Tasmanian Society's Rooms, 183 Liverpool St., Hobart.

Divisional Sub-Editor—T. Connor VK3CT, 361 Elizabeth St., Hobart.

Northern Correspondent—C. P. Wright, VK3LZ, 3 Knight St., Launceston.

reasonably expect the two Divisions who have not forwarded the amounts requested, to send them in the near future.

President General's Department

Our relations during the year have been most cordial with the Department and a mutual spirit of co-operation has resulted from all our negotiations with them. We have recently supplied a table of our eventual frequency requirements to them, and as a result of our discussions with them we have the release from the 1st May of the 144 to 148 Mc. band. The table covers all our requirements in frequencies and not overlooking the types of emission anticipated. There are several other matters in regard to regulations on which discussions are still taking place. During the year we made many initial contacts we obtained an amateur license for the National Expedition ship, the "Wyclif Earl" and the unusual call sign, VK3AA. I feel sure that our endeavours as far as Federal Executive is concerned, will be amplified in the course of the Convention.

Federal Executive Administration

The volume of work of Federal Executive has tended to increase during the year, and some idea of the actual extent may be gained when it is mentioned that the Federal Secretariat handled 53 separate communications in addition to the minutes of 18 Executive meetings. Meetings have been necessary fortnightly to cover the large volume of work entailed. In connection with negotiations with the P.M.G. Department, it was decided that a good deal of time is necessary to enable discussions to be held with those officers. Some preliminary work has been completed on the filling in of Contest Certificates which seems like becoming a major task. Quite a deal of administrative work may be obviated by prompt replies by Divisions to correspondence.

Technical Development

As regards the technical committee, the Executive has directed its forces on the Constitution and on the preparation of a technical programme, and it is felt that as much time has been spent on the first subject, encouragement should be given to articles in the Magazine on new techniques, and we should develop that programme to a more practical state in the task. Following a companion public to the Handbook.

Defence Radio Reserve

As Mr. Marshall, who has been co-opted by the Federal Executive, will attend with Wing Commander Redgrave, of the R.A.F., he will give you the latest information. In this regard, it follows for us to say here that progress is very satisfactory, and when details are finalized, Divisions will be notified.

I.R.U.

The various issues of the I.R.U. Calendar have been reprinted in "Amateur Radio" generally in

full and occasionally in abridged form. News letters to the Divisions on current happenings were issued to December, but thereafter there was no little additional news to that covered by letter by the Federal Bureau, so the news was discontinued.

Federal QSL Bureau

The Bureau, except for one brief period during the year on a matter of transients, functioned very smoothly and a total of 55,460 cards were handled for the month of April, and for the first four months. It appears the cards handled through the Bureau, will always total at least 75,000 per annum. The cost of handling the cards mentioned amounted to £5719/7/-, or a trifle over twice per card, and is only covered by the expense of Overseas postage. The local costs, mainly due to the re-directional facilities used by the Manager. It is considered that the time is appropriate for the Federal QSL Bureau address to be altered to 23 Landale Street, Box Bill, E. 11, Vic. to ease the heavy despatches from overseas to be directed to the Manager and avoid consequent chocking of the Box.

Federal Contests

The DX Contest appeared to be a great success judging by the favorable comments received from overseas. The total number of cards received from VK stations was 800 and \$100 from overseas. The C.W. Sections were the most popular, the number of phone entries being most disappointing and the receiving section poorly patronised. The prizes were good, particularly the equipment which was available by subscription. Some prizes left over from 1948 were made available for this Contest. The publicity was good and most countries were aware of the Rules. It is regrettable that the R.R.D. published the incorrect Rules. A number of late entries were received and it is hoped that in future contests, the time for them be extended by a month. There were some suggestions by VK stations that some official Bureau Bureau be approached to donate some tokens, representative of Australia and overseas, which they would not add to the expense and interest, but would be excellent publicity for the Contest.

The National Field Day Contest was almost complete failure as only two logs were received. Considering the amount of portable equipment that must be taken to the field, it is difficult to understand why so few entries were received. It is difficult to explain. Adequate publicity was given in "Amateur Radio" and over Divisional stations, and the apathy is regrettable and suggestions for popularizing the Contest would be welcome.

Traffic Circular

Schedules have been centralized on an average of two nights per week, and the total number of contests for the year were 364. N.E.W. Division maintained the most consistent schedules during the year, but a big improvement can be made in the year.

keeping of schedules especially. It is thought that this improvement could be achieved by having a standby operator for each Divisional Traffic Manager. Interference has been another source of worry, but if some plan is evolved for schedule keeping this difficulty may be overcome.

"Amateur Radio"

The Federal Executive has maintained contact with the Editor of the Magazine during the year and very good relations have been maintained. The Report for the technical development of the DX attitude has already been dealt with, and this will be done through "Amateur Radio."

Finance

The Treasurer's report is excellent, and it is becoming increasingly obvious that the present collection fees are not sufficient to meet Federal expenses. This will form the subject of some discussion during this Convention.

General

One of the points of some concern during the year has been the slowness with which we have received notification of the resolutions of the last Convention. It was with this idea in mind that we will request each Delegate to deposit with the Secretary General a copy of his resolution items so that in future the minutes of the Convention will show the Divisions concerned which items they may have ratified. A progressive year of review is expected both with the Divisions and the P.M.G.'s Department.

CONVENTION MATTERS

It was resolved at the last Annual Federal Convention that anyone requiring a copy of the Federal Constitution or, should I make up a copy of the Constitution, should make application through the National Secretary for same.

Another matter of perhaps greater importance is that of the large number of commercial appearing on our bands. It is felt that there should be some method and able to identify any part of distinguishing a series of such transmissions to report same to the Divisional Secretary who will forward this information to Federal Executive for collation and submission to the P.M.G.'s Department. Only by this method can we hope to keep our channels clear of these commercial "tattoos." Let's have that dope, fellows.

A number of a concern and universal import is the importance in some cases unwillingly being taken by Amateur Radio stations of the role of the Division and also to the Federal Traffic Network. These services are for your benefit—keep these charges clear. In the near future a revised list of times and frequencies will be published. Not well and help us to help you.

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE Statement of Receipts and Payments for the Year ended 31st March, 1948

RECEIPTS

	£	£	£
Balance in Bank, 1st April, 1947 ..	188	0	8
For Capital contributions from Divisions			
Queensland ..	£18	0	0
New South Wales ..	37	2	6
Victoria ..	75	15	0
South Australia ..	28	21	0
Western Australia ..	5	10	0
Tasmania ..	5	5	0
	188	11	8
Sale of Lapel Badges —			
South West ..	6	18	6
Victoria ..	44	13	8
North Australia ..	20	24	8
Western Australia ..	6	15	6
Tasmania ..	5	5	0
	84	11	3
Certificates—			
Queensland ..	£18	0	0
New South Wales ..	35	0	0
Victoria ..	25	0	0
Tasmania ..	6	0	0
	65	0	0
Contingency Account—Victorian Division ..	18	0	0
	£346	18	1

(Sgd.) F. EVANS Honorary Treasurer

I have examined the Cash Book, accounts and vouchers of the Federal Executive of the Wireless Institute of Australia for the year ended 31st March 1948, and have obtained all the information and explanations requested. In my opinion the within accounts correctly set out the cash transactions of the Federal Executive as at 31st March, 1948, and the transactions for the year ended that date. (Sgd.) F. K. HERSHAM, A.F.I.E., A.G.S., 25th March, 1948. Honorary Auditor.

DX C.C. LISTING

Applications for the DX C.C. should make sure that the card submitted along with details of callsigns and QSLs. By doing so we will assure themselves possible disappointment.

It is recommended that one or two cards over the bare hundred should be submitted. Who is going to be the first to make them DX C.C.?

PHONE	
N.H.	
C.W.	
VK2CN	168 (3)
VK2EO	103 (7)
VK2FH	102 (10)
OPEN	
VK2BZ	122 (5)
VK2DQ	111 (2)
VK2HQS	112 (4)
VK2JXN	164 (1)
VK2M	106 (8)
VK2PQ	107 (9)
VK2TCV	100 (10)

Figures in parentheses indicate membership number to DX C.C.

Please note that the only official changes to the countries list as printed in February 1947 QST are:

State of Man .. GD
Lebanon Republic .. AHS
Pakistan .. AP
San Marino ..

The following changes have also been made to prefixes of various countries (subject to further change when the Atlantic City determinations take effect):

Ansterdam & Nicolaia Is ..	VU5
Austria ..	MH9, OH
Baotoland ..	Z51
Caveva
C. G. T. ..	MD .. ZD4
Danish Islands ..	SV5
Eritrea ..	MH3, MH3
Egypt (& Suez Canal Zone) SU ..	MD5
Iraq ..	YI, MD9
Kiribati ..	HL
Lacaudine Islands ..	VI 1
Liberia ..	MC1, MD1
Madeline Islands ..	VS2
Morcha Islands ..	RX6
Somalia and Italian ..	MD4
Syrian Republic ..	AR1

Two further logs for the last Australian Contest have been received

HVK2CN .. 883 Points c/w
HP4Q .. 84 Points c/w

The first post-war Trans-Tasman Contest is over and although not a great amateur entered, there had had a good race. The contest ran for 3½ Mc and was using our DX Contest type of serial exchange. The yardstick of success of these contests depends on the length of time spent in please send your log even if you only had a few contacts key assist in the checking also!

FEDERAL IONOSPHERIC AND TROPOSPHERIC SERVICE

A Federal Ionospheric and Tropospheric Sub-Committee has been formed and consists of Messrs Oliver Morris, Doug Anderson VK3ZK, and Ves Smith VK3VSY. This committee has undertaken

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to publish a chart which will give ionospheric predictions for all Australian States in addition to countries for each month. Weekly alterations will be sent via Federal Traffic Channels each Friday night in sufficient time for promulgation over the Divisional Stations during the Sunday morning broadcast.

Dr. A. L. Gross, head of the Ionospheric Prediction Service in Australia will provide the information and this Committee will be responsible for its dissemination.

AMATEUR CALL SIGN AMENDMENTS AS AT

1st MAY, 1948.

A station or Call, Address, etc.

VNSAJE—H. L. Miller, 75 Saumarez Rd., Rose Bay 2340—M. A. Allerton, 26 Manchester St., Darling Hill, N.S.W.—N.B.

31Q—P. R. Treacher, 28 Budgery Ave., Homebush.

2MK—M. H. Attwood, 136 Denman St., Wrattonbully.

23A—D. J. Russell, 116 Bogan St., Nyngan.

2EB (In lieu of VK3EB)—N. G. Hannaford, 91 Farnham Rd., Concord.

VNAWDC—W. W. Welch, Bank St., Aspendale, Vic.

VABRW—R. White, 28 Ballarat St., Hampton.

2GJ (In lieu of VK3GJ)—G. G. Reynolds, 9 Darling Rd., East Malvern, N.S.W.

SLU—E. M. Mahony, OTC Radio Station, Bairnsdale, N.S.W.—L. Woodman, Gabriel Ave., East Malvern.

2YD—D. J. Brown, 48 Lambton Rd., South Yarra.

4UB—R. M. Cameron, Kerri Rd., Archibald.

VK9YV (In lieu of VK3YV)—W. W. Watson, OTC Radio Station, Werribee. T.P.N.G.

New calls

VK3AQG—W. H. Tombs, 11 Ellalong Rd., Cremorne.

+VX—T. R. S. Mait, 17 Avoca St., Inverloch.

2MZ—Hawthorn Divisional Amateur Radio Club c/o W.A. Ross, Power Rd., Hawthorn.

2UK—S. D. Phillips, "Lambie" Flat, Wingarrie, N.S.W.—Dudley.

2 K—E. E. Iken, 18 Brandy St., Maranara Rd., Townsville, via Criminal Past.

23K—E. W. Moore, 2 Malpas Court, 26 New Southgate Rd., Edithvale.

2VH—John Ward, 139 Glades St., Woorabinda.

VRAFPM—G. C. Billings, 8 Murray St., Armadale, N.S.W.

2AP—J. F. Fenton, 46 Main St., Geelong.

2YH—T. P. Evans c/o "Kawn Downs," Diggers Rest.

2SK—R. L. Mongatney Ave., Preston.

ATV—A. C. Styles, 45 Brudenell St., Malvern.

25V—E. W. Harrison, 55 Mountain View Rd., North Balwyn (Portable).

HAMS WHO LOST THEIR LIVES DUE TO SERVICE

VKAJLB—O. C. Curtis RAIAF

VKAJQB—P. East RAIAF

VKAJVC—C. J. Johnson RAIAF

VKAJYJ—V. J. Jarras RAIAF

VKAJYV—W. Abbott RAIAF

VKAJZB—J. M. Morris RAIAF

VKAJZC—V. H. Mann RAIAF

VKAJZD—E. G. Simms RAIAF

VKAJZI—H. Orr RAIAF

VKAJZU—A. E. Thompson RAIAF

VKAJZU—J. E. Colthorpe RAIAF

VKAJZU—R. P. Heath RAIAF

VKAJZU—W. Jones RAIAF

VKAJZU—W. J. A. Barrage RAIAF

VKAJZU—E. Seaton RAIAF

VKAJZU—D. Las RAIAF

VKAJZU—J. Starr RAIAF

VKAJZU—R. A. Williams RAIAF

VKAJZU—C. Ives RAIAF

VKAJBL—Brian James RAIAF

VKAJBW—Phillips RAIAF

VKAJBR—A. H. G. Moore RAIAF

VKAJCR—G. G. Goward RAIAF

VKAJDR—K. Anderson RAIAF

VKAJER—P. Patterson RAIAF

We are indebted to VK3ALX, VK9HZ, South Australian Divisional Council, and VK9AR for some corrections and alterations to the above list.

We wish to advise the list of names above within the next month as the Perpetual Trophy for the Renaissance Day Contest is to be inscribed with the above list of names. Please send any information changes to above list, etc., to Federal Secretary, Box 2611W, G.P.O., Melbourne at the earliest.

when prior to the restoration of licensees in Portugal our friend was active as IJS without any prefix.

The I.R.U. have given notice in March "QST" that the special endorsement for W.A.C. on 28 Mc. stations will be withdrawn on 28th June 1948. That is to say that there is now no need for special encouragement for Home to use the 28 Mc. band. In view however, a special endorsement for W.A.C. to be made has been initiated. Who will be the first VK applicant?

In India QSL is issued by ZGIAL, the station of the Indian Legion, with QSL address stated as Post Office, Melega, Tranquebar. The card supplies the following information. Tranquebar became an independent kingdom ruled by H.H. King Abdulla in 1842 and therefore QSL is issued in his name to be accepted for B.R.R.T.A. and V.R.E. Contests. The Arab Legion is the National Army of Transjordan.

Following are some DX QTHs that have come to hand:

PRSA—John Duplat, Noumea, New Caledonia. ER1TF—Lord Plummer, Box 67, British F.O. Tangier.

MD7DA—D. MacDonnell, Cypress Sig Squa, N.E. L.P.S.

ETSAF—John Dell, Box 858, Addis Ababa, Ethiopia.

V99ET—Eddie Gary, R.A.F., Sharjah, Trucial Oman, Arabia.

JY1AB—P. C. Edd, Vila Sea Helibey, Ginea-Bissau.

VI2GB—G. Evans, Box 62, N.S.W., Georges, Green-

ville, N.S.W.

NEW SOUTH WALES NORTH COAST AND TABLELANDS

ZUN moved to Dapto near the rotary beam by training the best Lindsay, this time is listening for you, keeping going to 28 Mc., 288P and 28L. 28L is held on the top of Taree, 28 Mc. and 24 Mc. and has a 60' x 10' antenna, runs 110 watts input, 884, 28Q and 28Q both active on 28 Mc. ZATH has new antenna with good results, 28 Mc. ZATH has new antenna with good results, 28 Mc. thinking of going to 28 Mc. and passing sun antenna.

2SK lost amongst the 14 Mc. DX, getting his share also, who said he couldn't work DX 14 mgs that are noise. 2ZX back from VK9 at 1 on agenda with two sets phone on 14 Mc. 2SH has now folded dipole and uses. He has been having many jalas recently while the XYL is away. 2PA enjoyed Ham hospitality well in Sydney recently, met about 20 hams in all.

NEWCASTLE

2AK has three elements going nearly on 28 Mc. 2AK was so impressed that 28 Mc. is next for him. 2SK holds 28 Mc. on 14 Mc. and 28 Mc. 2SK has a 60' x 10' antenna, runs 110 watts input, 884, 28Q and 28Q both active on 28 Mc. 28L also 14 mgs, 28L is put fractured wires out of 2 Mc. rock, hence 1/4 yard of film on 28 Mc. 2TE also with three elements in 28 Mc. and plenty 28 Mc. 2AF tuning up 28 Mc. beam, good re-

TRY . . .

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HAWTHORN — VICTORIA

Phones: Day—WA 3819. Night—WX 3440.

solds with Teleon and the match 20S on last lap now, building transmitter, all else ready for bug switch.

SAGL cleaned up modulation troubles and preparing a 28 Mc. beam. 2EZ most impressed with new 28 Mc. beam. 2ARA keen as ever with exports all built in house. 2ARL and club rules and regulations. The Reynolds Radio Club was formed on 23rd April. 2AGD experimenting with crystal filters when not DXing on 29 Mc. 2IPF still looking for eight more countries to make up. 2EAD 28 Mc. was on 28 Mc with 35 watts, using the same 807.

COASTAL AND LAKEIS

2AUW on 28 Mc. regularly, DX no trouble. 2AVI at work on 50 Mc. with a new beam. 2AEZ heard passing the 28 Mc. beam on 28 Mc. 2TX, on Wymondham, a competitor back then was heard on 28 Mc. 2BZ another Q.T. on 28 Mc., so guess Alex will shortly make the v.h.f.'s. 2TY using vee beam on 28 Mc., look for him on 144 Mc. also. 2RR chewed its tail on 7 Mc.

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Maxwell Howden

15 CLAREMONT CRES.,
CANTERBURY, E.7.

2KZ near his 2B Mc. formed all with 25 watts. Three elements on 56 Mc. have gear and pole erected 7 Mc. when time permits not too much chaffing trying two half wave in parallel. 2BZ using higher note on 114 Mc. hearing 2LZ and 2FL from Mountain, 90 up past way on 28 Mc. phone.

SOUTH COAST AND TABLELANDS

Signs of activity are great in Wood ongoing, many new stations making their appearance. The Wellington Amateur Radio Club has been in full swing with 2AIP as President, 2ARL Vice President, 2GJ 28th Treasurer, 2A "secretary". If he could get 2AIP as member the Club is letting Wood-wong on radio enthusiasts into the Ham Park "W" building 100 watts to P.R. 20%, a 1/20 to come along shortly. 2ARL has a 200 watt rig, a 1/20, a 2KZ, 2BZ, 2AGD and 2BZ are all in the same place sharing the frames. 2AGD has 1/2 tubes of double conversion under way; but has 81K in a wind storm recently.

2AUW born in Wood-wong some time—wall paper 20' long, about 2' wide, 10' high, 10' deep. To Me. c.w. reported 20' x 10' room, 10' high, 10' deep. 2AUW there for a nice field day. 2PI at Gumeracha, with a noise silencer that does more harm than good, has QRN from 20' x 10' room 10' high, 10' deep, 20' x 20' x 20' room 10' high, 10' deep, what a QTH! 2AGD has a 200 watt transmitter, 2BZ has a 1/20, 2BZ was recently heard from 2NSX whilst visiting Bathurst. 2BZ transmits on 7 Mc. with 7 watts to 144 and five take super. Also active in V.U.T. are 2GU, 2PU, 2TV and 2AGD just now.

2AUW, 2BZ, 2PI and 2AUW, 2AUW, 2TV, 2TQ, 2TC, 2AUW and heard during the month but the group to whom they are building for 14 Mc. 2AUS in 7 and 14 Mc. and doing nicely with lower power 20W. Transmitter using a No. 11 but bigger things being planned. 2ARL, West Wyalong has dipole and v.t.o. completed the latter allowing 200 watts more from 114 Mc. crystals. Thanks to 2KX at 2JMW for news. 2QD on 7 Mc. thanks to our news man.

SOUTHERN ZONE

SVK busy servicing, but will be in the QRM shortly. 2ED almost finished new rig, rack and power supply for the 14 Mc. project. Now that the 25' foot tower is upright, a detailed heightening of the tower is now in progress. Now little patience and much tubing to finish the job. 2QD back in Albury from rural life. 2QE is on the way with three stages finishing with 807, may be a little time yet. 2APW building new oscillator in two pieces. 2QLR 200 watt meeting full wave job for 7 Mc. 2ANQ with test and other loads is very busy. Notes from other towns to follow.

VICTORIA

At the May general meeting of the Division a lecture on Radio Frequency Heating was delivered by Mr. J. W. Bayliss, B.Sc. Mr. Bayliss, who has only recently arrived from England to work for Vista or General Electric Co., displayed a detailed knowledge of the subject and gave a most interesting demonstration. A bare strip (with received sound effects) was shown dealing with the fundamentals of electronic frequency changing particularly in so far as radio frequency heating was concerned.

Operation of the circuit in heating using low frequencies of the order of 100 Kc/s and for dielectric heating using high frequencies of the order of 1 Mc. was illustrated. Using eddy current heating of conductor skin effects become useful, and it is possible to heat treat the wearing surfaces of components without the possibility of affecting the toughness of the underlying material.

On the other hand, dielectric heating is useful in applications where the material (necessarily a dielectric with high loss factor) is heated uniformly throughout its mass. A common application is in the heating of insulators during the manufacture process. Important problems are introduced into r.f. heating by changes in the electrical characteristics of the load as it warms up. In order to keep the load on the r.f. source constant, either the frequency must be varied or if crystal control is used there must be much more tuning of the load circuit must be provided to.

A keen interest was shown by those present in the problem of r.f. heating, and this was amply demonstrated by the numerous questions directed to the lecturer.

AMERICAN QSL BUREAU SERVICE

The following information will be of interest to Victorian Amateurs:

OUTWARD—Bring your cards into the General Meeting OR Post to Outward QSL Manager, Mr. F. O'Dwyer, 190 Thomas Street, Hampton, S.E. Price 1/- per card. Cards to Victoria are free.

INWARD—Outward cards can be sent to General Meeting OR supply towards QSL Manager, Mr. G. Roper, 26 Loxes Street, Caulfield, S.E.2, with stamped addressed envelopes.

VICTORIAN DISPOSALS COMMITTEE

On Saturday and Sunday, 5th and 6th May, the Hospitals Committee held another of their dispensations (the last at the Batman Avenue Depot) which was considered by members to be very successful, particularly considering the large quantity and variety of equipment handled.

Although there were many new items to come for Last No. 4 (all will still receive SRSS21s and AT5 AR5s on order will receive them), those who attended were able to take part in the distribution of many miscellaneous items, many of which were very popular and should be available again in the future. If members advise us that they require similar items.

Zone Disposals Representatives, acting on behalf of their members received very fair treatment, being given a reasonable amount of time to go over the items on offer. The result was that on the average the country members received exactly the same amount per head as the city members.

On a Zone basis the comparative amounts per member were as follows: City £1, North Western £2 5/-, South Eastern £1 10/-, South £2 2/-, Central £1 10/-, West £1 10/-, These are separate arrangements being made for the North Western members because of their small numbers and great distance from Melbourne. We thank those Zones who co-operated with us and hope that the experience will be repeated, particularly by the Central Zone which kept their members fully informed regarding the information passed on to all Zone Secretaries by the Committee. One Zone, however, did not co-operate and in addition made false statements over the air, both before and after the distribution, which we believe would make it impossible for our members to obtain the best value for all Victorians and Interstate members. We repeat our request not to pass on over the air any numbers you gossip you may hear, contact either your Zone Disposals Representative or this Committee to get the true information.

No doubt samples of a wide variety of items have been distributed, to come well in to us and let us know of your future requirements, but owing to the large amounts of work involved we regret that we cannot reply to individual letters, but we do want the reaction of members as a whole to this new type of distribution.

T.A.C. ACTIVITIES

Power Group—At the first meeting of the Group Mr. G. A. Goss spoke on possibilities of amateur experimentation in the 14 Mc. band equipment. Amongst the equipment demonstrated to the meeting were a multi-tuner, vacuum tube v.t.o., transition oscillator, signal tracer, and a v.t.o.

T.A.C. General Meeting—This meeting is devoted to general business. At the April meeting it was decided to proceed with YK8SWL transmissions using the 8.5 Mc. band. When this service commences, the Sunday broadcast will be radiated on 8.6 and 7.2 Mc.

The Committee approved of the purchase of the following new book for the lending library: "Radio Handbook" (U.S.A.) 11th Edition.

V.H.F. Group Meetings—At the May meeting further general discussion took place on the question of the great interest in the proposed construction for antennas in the new 144 Mc. band.

At the June meeting, Mr. C. W. Rollan, of the P.M.S. Department Research Staff, will give a lecture and demonstrate on a subject of great interest to v.h.f. experimenters. The details of the programme for this meeting will be given in the Sunday morning broadcast from YK8SWL

A.O.C.P. CLASS

The Victorian Division A.O.C.P. Class will commence on 15th July, 1948. Lectures are held on Monday and Thursday evenings 8-10 p.m. Persons desirous of being enrolled should communicate with the Secretary Box 2611W, G.P.O., Melbourne; Phone FJ 6997 from 9 to 5, or the Class Manager on either of the above evenings.

A.G.C.P. Congrats Wally! When the licence arrives he will be ready to go on the air, and he'll be a great asset to our zone. Another keen associate is J. P. Troy, of Escondido, whom we expect to get the ticket soon. He is taking a correspondence course, last Templeton S.A.I.T. has joined our hook-up with nice phone.

SALE has nice speech quality, plane on low power from the d.c. mains. 3CH has at last made

a cometek with either phone. All is own operator of the Bellingham town d/c supply, so he can't be wrong. I've got a question though which I can't seem to find the answer to. For 3.5 Mhz I am now joins in our ham spots. Operated from a spare room at Wall's Electronics, 3711 1/2 E. 10th, new building. Frequency meter is a Korg model 1000. His 9Mhz rotary is ready to erect, but plane has waited so long for the AT&T ARS that he just doesn't believe it now. It has arrived though, and he says it was delivered by air mail. He was having a disastrous crisis at KUGA when the XYL thought the new atomium front panel would make up in the even w/o the KUGA came upon an ARB and Befen frequency meter. She says he has been a good boy ever since - digress your housewife has never been treated so well.

SOUTH WESTERN ZONE

During the discussion following the reading of a letter by Dr. Phipps' distribution it was the general opinion of those present that VENWI could have been used to broadcast at intervals the fact that there had been a breakdown of arrangements.

In view of lack of notification, the DX Contest as a subject at Warrington, let me urge that the DX Contest should be held, examining into the King's Birth day weekend. Details are as follows: Contest will be held on 7 Mc. phones and c.w. and will commence at 12 noon Saturday and continue until 12 noon the following Saturday. VXA, VKE and Northern Terrening will count as DX phone contesters. Scoring will be five points plus one point now. Contests will be used as multiplying as per usual.

Also, I have donated an ESS for use in the ESS-AWAR contest, an ESS for use in the Mc. trophy, as at the next Convention on 825 and an 823 will be awarded for the greatest distance worked as a DX station.

Join us in a competition, strange for the most recently serialized piece of equipment to be judged

nominated: MacGregor 4EU and F. Nelson

The Secretary informed the meeting of the proposed course class to start on the following of Friday evening and asked those who would be willing to lend a hand to let him know. Several members offered assistance and IPE and 4AO were detailed to take the first class. The afternoon session was held at this time and when Mr. W. Argant (4KH) offered to place at the Institute's disposal an automatic keyer for class instruction. Needless to say the offer was accepted with alacrity and a venue of thanks was moved to 4KH for his generosity. Harry also loaned his code from the machine which was to its effectiveness. The first class was available of by sign up 20 odd members.

etc outlined the proposed field days. The first being a club event to be held on the first weekend in May. Unfortunately, owing to some torrential rain the event could not be held, the roads from Brisbane being flooded. The following Sunday morning a glimmering was seen on the horizon, the following stations coming in strong—**4XZ**, **4KZ**, **4DK** and **4ZL**. For more details see "Fifty and Up". The low frequency field day will be run on the King's birthday week end in June and will be restricted to portable operation. The radio trade very generously donated some excellent pieces of gear for use as trophies, half of which is to be awarded for each of the field

We had the pleasure of a visit from the W.A. Secretary Mr W. Tunison during April and in a flying visit to various she-sheds in the company of 4RT he observed the work of the VKA and was particularly impressed by the degree of activity in VKA, particularly in the methods of running general meetings where apparently it is to keep all proceedings as simple as possible and no one is asked for greater knowledge than that which can be easily obtained. It is interesting to note that in all these cases there will be力求 to hear members' views on this point here.

SWL has added 144 Mc to the frequencies for SWL broadcasts making 74, 84 and 144 Mc channels available for coverage. 840 raised a point at the general meeting as to the possibility of 28 Mc transmission but IFRN, the operator of the station explained that skip and variable ionization rendered the band unusable.

estimated in Mr F. Barberough, who made the
counts and valued several pounds to the equus.
Hippopotamus stocks have been, or will be, the
subject of a print, exhausted and at the present
time no information is available as to the likely
hood of more being available.

SOUTH AUSTRALIA
The monthly general meeting for May was held at Tivoli Hall, 17, Waymouth Street, where Mr. Hal Austin, M.A.W.R., gave the guest address, showing as his subject "The Theory and Practice of Transcensor Construction." His lecture was short and met the point everyone present agreeing that lectures such as this given to a practical man who knew his business well were most welcome. Following the lecture a vote of thanks proposed by STH was received with acclamation.

Had sat at length with the various types of laminations, the various methods of stabilizing, etc., realizing that it would be more interesting if I could, if possible, go over the country of SWB. He gave me on the blackboard a typical example of a Ham "stray" and developed it theoretically, starting from scratch. This explanation (although we have all read the same thing in the handbook, etc.) was much better appreciated when given by one who had actually made the circuit. I am glad that "Radio News" for June, July and August contained an article which gives some of the most comprehensive data and instruction on transformer construction that it was possible to secure. The lecture closed with question time and riding by car around the city and vicinity of the laboratory. The lecture was appreciated by all present. Just in closing, the various exhibits were returned OR, but they seemed to linger an unnecessary long time in the vicinity of SWB.

A reply was received from Steve Henstock (SWB) accepting the position of country representative on the Council although no mention was made of accepting any country notes. What about it, O.M.?

No reply as yet from Frank Miller (SWB) regarding his acceptance of the position of country

reporter. Can it be that the art of criticism is easily attained but seldom lived up to?

One of the important things dealt with at the Council meeting for April was the suggestion by SBF that apparently (judging by the VRS notes) the Sub-Editor did not know that country news existed and that more country news should be included in the notes. The "crack" concerning not

assured over (all the Council members being gentle-
men) but all present, including the Sub Editors
were in complete agreement as to the inclusion of
more country news. The Sub Editor explained that
he was not a "so and so" magician and could
not be expected to conjure news out of his hat
even if he possessed one) and without the co-
operation of the readers' members there is, no
news.

The writer's speech in the SFBF the other day was well received by the League, the speaker being a well-known figure. The question of whether or not the SFBF should be disbanded was put to the League, and the SFBF members said that as the job of gathering the news was purely a voluntary one he had no right to interfere with it. It was also pointed out that the SFBF had raised the money to buy the equipment and that the League should not interfere with it. The SFBF, of course, will be split up if the League does not agree to take over the equipment. The League has agreed to do so, and the SFBF members have been materially aided by the SFBF. The League has agreed to do so, and the SFBF members have been materially aided by the SFBF.

We have now the position at the start of the magazine, and some very complimentary things were said, but all sides were agreed that the "magazine" did not deserve newsprint and should not be distributed.

Five days ago a petition was submitted, finally culminating in a vote, which favoured the motion 42 votes to 56, several members having been absent before the battle clouds had apparently cleared. The VRA's rules provide that a majority of order carries the fact that seven members had voted, and under the VRA's rules, "social" members are not allowed to have voting rights. It is a pity at this stage, having achieved a majority, that the VRA has chosen to withdraw the motion, but as the seconder had voted, it could not be done, and the voting rights were in disorder with the decision to postpone the discussion at a later date. All in all, it was a good result, though it would have been a nearer run to their feel who had never had the opportunity to do so before, this is all to the good, and even if nothing was achieved, at least it got a lot of people out, and it is quite easy to get out a lot of people in a short time. Furthermore, the VRA Magazine Committee would do well to examine the position in the light of the foregoing, which is a definite expression of feeling from a number of people (one granted), but

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QUEENSLAND
Owing to the absence of President 4AW at the general meeting held on Friday, 28th April, the chair was occupied by Vice-President 4VJ who certainly showed evidence of being cast out for the job. Mr. E. Nolan (4PN) gave a resume of doings at the Convention and Secretary 4XG read through the list of agenda items indicating as he went how the meeting had gone. As 4PN's term as chairman Entwistle, a "modest" boy, expired, nominations were

of those Yanks up on the islands." Shades of Marconi and I can remember when a South American was stammering something to write home about a radio bulb about it. Amateur Radio is fast losing a lot of its glamour.

I like the story about the VK5 Ham who became so seasick with the ship that nothing he ate or drank was any value. Nothing that anyone could do or say would console him otherwise, as his mental condition was deteriorating fast. I natives, as ed in "Her" Barber (3MID) and Tom Ades (3MA) who finally agreed that the only answer was to get him off the boat as much operation and proved I have removed a valve from his tummy. The Ham was quite agreeable to the operation, and while he was recovering from his astigmatism, "Dot" and Rose secured an 807 valve and placed it on the operating table. When the Ham was sufficiently operable, they said, "Well old man, you were right and we were wrong, then certainly you was a radio valve in your tummy, and there it is." Turning a wan face toward the 807 Ham said weakly, "That's not the radio valve that I'm talking about."

It is reported as having a terrible gash there has which is said to be coming from a new antenna, the details of which are still in the "iron lung" stage. It must be good, because all the "Is" we're going to bring along will get treated just like the ham, relatives and his house and money. Luck in safety.

We are 50% weaker VK5AB this month he was foolish enough to give the YV his nickname of "IOWA". Now everybody is so teasing him as "Iow-W" and making him if he intends going to San Fran for his honeymoon.

He is still in the peace, however, by keeping the very amateurish actions of two of the residents of that district, who apparently ride around the streets in a green Morris 8/40, and stay at every place and go through some peculiar antics with a little dog which is attached amidst other things. The description given sounds like "HIFI" and "VK4", bet what on earth would they be here to do during that fer?

Was asking to one of our leading DX kings the other day where his young son came up to the moon. What said? "Oh he knows this fact he proudly" because Dad's letters today all have front windows.

Ross Keay built himself a "Plumbers" Delight at his home for keeping the radio parts well chattered to the men. Ross has called it a "cabinet of novelties" but that name was never mentioned. Last week he had a 20 foot ladder strapped to the side of the "Plumbers' ZXEMERX" and I would not be surprised to see his name in electric lights in a few days.

An old friend rumour is going the rounds in VK5 to the effect that Mrs. Brown (6MIB) has sealed his Heaven owing to being QRL in his vacation. If this be true, then all I can say is that it is another bad news. Mrs. and Mr. Hall have no more than Y5 with various Ringers for me to say. That I care to tell them. Mrs. of all signs beginning with VK5W were selected at last formed to assist the "milk" Ham when such as was have to go. It's all right, I am sure, that the entire outfit is the filling and lighting only the necessary points, and divide it among us top Amateurs to-day is a perfect example in this direction. It is to be hoped that whoever is lucky enough to secure his d contact can say "thank you" and appreciate the benefit he receives by attaining it.

Apparently the poor conditions existing in VK5 makes have prompted most of my contacts for me to do is to relate, or take on some constructional work. I'm sure of which has prevented them from getting any of the calls we, but VK5 is the only DX station in the country. The task becomes much easier. A dinkie blind has whipless in my ear too... Editor is coming along now as a real jewel for my own use, and as I can have a half with the best of them, this will be all for a month.

WESTERN AUSTRALIA

The May meeting was held on Monday 11th. Drew G3JLH members attended, and a new member, Drew G3JLH (en route coming up), was welcomed. VK5 CW were visitors from Geraldton. We were sorry to pass to meet them a person. They had to go to visit another Perth station, though I did let them take down my route to North

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Beach—(SRC and SWT)—as their programme went "high-wire." Anyway Eric and Cyril, we hope you have had a safe and happy homecoming.

QSL Office VK9RE presented a new system for handling QSL cards in 1948. The idea is similar to that used in South Africa, where Amateurs buy gummed stickers at so much per 100, fix one sticker to each outgoing card, and hand them in to the QSL Office for cancellation and return, with the QSL Officer is when one buys a sheet of stickers. The proposed rate is 5/- per 100 stickers. This idea met the approval of Council and all present at the General Meeting.

The result of the poll was the general feeling in VK9 about "Greene," which was that only 36 votes were cast in 52 weeks in favor of "Greene" continuing in his present form.

The President brought up the matter about subscriptions for 1948. The financial year for 1948 commenced on 1st March. Are YOU FINANCIAL? The number of individual members was not generally reported until VK9 made his statement. The idea of commencing the financial year on 1st March is to bring all VE States into line.

It was also announced by SWH that any Disposals equipment available for VK9 Amateurs would be ballotted for in future. Small numbers of the most recent concern would be drawn against the applicant's name. The system will obviate any pleading and chasing and seems to be the fairest method of distribution.

At the conclusion of general business the usual rag-chew followed. Then G.W. gave us a chat on the VK9 visit to Britain. He had been invited to give a few talks there, and remarked on the hospitality and co-operation of the VK9s he did contact. (Thanks for helping our Secretary back to his camp VE4—ED.)

Both SWH and SAG then gave a short lecturette on the VK9s while SAG took back as samples from VK9. It looks as though supply will not meet demand.

The meeting officially closed at 10.30 p.m. and we were clear of the building ahead of schedule for once.

PERSONALITIES

SAG is at present visiting VK1 on business. No doubt Wally is checking up on the availability of obtaining some more Disposals equipment that will be of interest to VK9s. We are anxious to hear all about it. Wally, SWH was pleasantly surprised

to hear Horrie burning up the ether around 28 Mc. Heard some L.B. reports on him too. SWH has his SW22 working nicely on 14 Mc. What's your best DX on 14 Mc. Ron's G.R.T. has stayed a checkmate on 7 Mc. Len must have seen May's Personalities before they went to print. Pleased to hear you again Len. 6TX is a stalwart on 7 Mc. and Jack is considering giving some of his crystals a few runs to dodge some of the QRMs.

You don't hear G.W. because of all distance, but we do hear the DX calling back to him. Nine work the VV on 59 watts. 6AP is a 100 watt merchant and has earned a fine list of African countries. 6TH, "Teenney Baker's" new receiver is working and he puts Baywater on the 28 Mc. band. 6HC is going 100 watts and is re-building the rig. You can't beat him. G.W. says he is getting to know him well soon be back better than ever. SWH spends a lot of time operating on all bands. He gives some really useful checks with his t.b. equipment at Wertheros. 6SW pounds the brass on 14 Mc. and 6W is hunting for a South American for his W.A.C. feed.

SWH is getting a rig going on 144 Mc. and is apparently giving the DX bands the go-by for the time being. 6HU is really an O.T. and one of the first Hams in the VK9. Bert is still active on 7 and 14 Mc. and has some t.b. contacts considering his low power and QTH. 6DP not heard so often lately, but when the DX is 20 Mc. and 14 Mc. is right on it. 6AS is at present quite quiet, but I expect a move to Carnarvon but we are hoping he will get a small rig going from up there. How about a few hours, or even a QSO would be better. Alan 6DE has heard Morris for ages. The beam will be round if he goes to 144 Mc. 6AM and 6ZB are too busy for Amateur Radio these days, and the 7 Mc. 28s can't make out the quietness over there. How come Stan? 6DX is our c.w. DX man, but can't say I have heard him on lately.

6JS is buying up a stack of necessary parts to put 190 watts into an 813. We'll be looking forward to hearing you on 144 Mc. GFC re-heated and the W.L.A. is still working. 59 Mc. band is not worked but only the VK9s listen to him. Frank wants his W.A.S. and is waiting for a M.U.F. or T.L. to come his way. 6LW works at the same place as GFC and we have two minds with a single thought. Wally's portable 50 Mc. rig has been doing some good trips lately. 6IG is still heard regularly on 7 Mc., but we know his has other ideas still.

Haven't heard G.R.B. for ages now. What's happening out there at Mt. Hawthorn? 6LM is a going concern on 144 Mc. Now, and we can expect to hear him on 28 Mc. Any day now, did you hear about Mr. Lionel? 6MG Mac had a visit from 6JW last month, and we hear John now likes tomato sandwiches. Sounds odd but that's the way things model!—and so help me!

DAY APRIL—BY VK9RE

Conditions on both 14 and 28 Mc. bands have shown a gradual falling off during this past month, particularly in regard to the latter band. Apart from this aspect, some choice stuff has been worked, as would be expected with the weather improving. In winter we may expect better conditions to what they were during the past interesting summer months.

25 Mc. Phone, Europe.—Nowhere near so consistent these days, although on the few occasions that I have been open I have quite a few QSOs who have called. G.W. says the old country have again been in the majority and those from the other prefix districts were PAOCB, OVH, OOO, Holland, Belgium, Germany, SW4CC, Wales; GM5AVY, SBPA, Scotland; ZL2Z, ING, IRO, Italy; PBEQ, SBPA, SW4CC, SW4C, SW4TS, Denmark; 2AB, 2AK, Malta; SW4SPM and SWL Sweden, and 94AQV U.K. Zone in Germany.

Africa.—This continent is showing its usual behaviour for this time of the year in that most signals have been anything up to 80 and over on various bands. G.W. has been getting signals from the Union boys were ZSABY, IW, ZAA, GLR, 6ZB, 6CH, 6KP, 6JL, 6AG, 6W and 6QO. From farther north came ZE1JBS, 7JH, Q8SBQ, Belgian Congo; STMP, Kharostan; VQ4CJG, 4JERP, Kenya, and ZD4AM Gold Coast, the latter being a most sought after contact for some months.

Asia.—Apart from the usual JAs which seem ever present each day, the others worked were EQL, Persia or Iran; HL1AJ, LAU, Korea; V37RM, Ceylon; APED, 4D, 4B, Pakistan.

South America.—With such skip conditions prevailing, countries like the VK9s have been putting in signals mostly like ZLs, ZLs in particular.

North America.—Earlier in the month we were worked quite freely and plentifully, but from about the 20th onward, a rapid falling off on the band was observed. SW4CQ responded, but not with the consistency of those made earlier. Recently 4W and VK contacts is not expected for the en-

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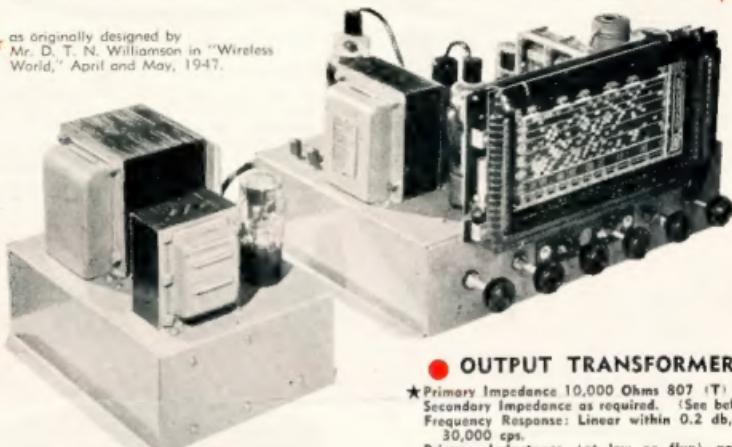
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